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CONTENTS

THE MASSACHUSETTS MEDICAL SOCIETY

MEETING OF THE SECTION OF HOSPITAL ADMINISTRATION, JUNE 4, 1919.

THE STATE CLINICS FOR THE TREATMENT OF VENEREAL DISEASES. *By Eugene R. Kelley, M.D.*, Boston.

THE DUTY OF THE HOSPITAL TRUSTEE AND HIS RELATION TO THE STAFF. *By Mr. C. H. W. Foster*, Boston.

THE RELATION OF THE MEDICAL STAFF TO THE TRUSTEES AND ITS DUTY TO THE HOSPITAL. *By Edward H. Nichols, M.D.*, Boston.

RECONSTRUCTION HOSPITALS, MILITARY AND CIVIL. *By Frederic J. Cotton, M.D.*, Boston.

CASE RECORDS AND HISTORIES IN THE SMALLER HOSPITALS. *By Horace P. Stevens, M.D.*, Cambridge, Mass.

ORIGINAL ARTICLES

VENEREAL DISEASES AND THE PUBLIC HEALTH. *By George Gilbert Smith, M.D.*, Boston.

GASEOUS EXCHANGE WITH UNPRACTICED SUBJECTS AND TWO RESPIRATORY APPARATUS EMPLOYING THREE BREATHING APPLIANCES. *By M. F. Hendry, T. M. Carpenter, and L. E. Emmes*, Boston.

AMERICAN MEDICAL BIOGRAPHIES

WILLIAM THOMPSON LUSK *By Graham Lusk, M.D.*

EDITORIALS

REVIEW OF INFLUENZA EPIDEMIC.

HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

FIFTIETH ANNIVERSARY OF MASSACHUSETTS STATE BOARD OF HEALTH.

For complete table of contents, see first text page.

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TABLE OF CONTENTS

September 11, 1919

THE MASSACHUSETTS MEDICAL SOCIETY

MEETING OF THE SECTION OF HOSPITAL ADMINISTRATION, JUNE 4, 1919.

THE STATE CLINICS FOR THE TREATMENT OF VENEREAL DISEASES. *By Eugene R. Kelley, M.D.*, Boston. 309
DISCUSSION OF DR. KELLEY'S PAPER. 312
THE DUTY OF THE HOSPITAL TRUSTEE AND HIS RELATION TO THE STAFF. *By Mr. C. H. W. Foster*, Boston. 313
THE RELATION OF THE MEDICAL STAFF TO THE TRUSTEES AND ITS DUTY TO THE HOSPITAL. *By Edward H. Nichols, M.D.*, Boston. 316
DISCUSSION OF MR. FOSTER'S AND DR. NICHOLS' PAPERS. 318
RECONSTRUCTION HOSPITALS, MILITARY AND CIVIL. *By Frederic J. Cotton., M.D.*, Boston. 322
CASE RECORDS AND HISTORIES IN THE SMALLER HOSPITALS. *By Horace P. Stevens, M.D.*, Cambridge, Mass. 324
DISCUSSION OF DR. STEVENS' PAPER. 327

ORIGINAL ARTICLES

VENEREAL DISEASES AND THE PUBLIC HEALTH. *By George Gilbert Smith, M.D.* Boston. 329
GASEOUS EXCHANGE WITH UNPRACTICED SUBJECTS AND TWO RESPIRATORY APPARATUS EMPLOYING THREE BREATHING APPLIANCES. *By M. F. Hendry, T. M. Carpenter, and L. E. Emmes*, Boston (*continued*). 334

AMERICAN MEDICAL BIOGRAPHIES

LUSK, WILLIAM THOMPSON (1838-1897). *By Graham Lusk, M.D.* 344

BOOK REVIEW

Concerning Some Headaches and Eye Disorders of Nasal Origin. By Greenfield Sluder, M.D. 345

EDITORIALS

REVIEW OF INFLUENZA EPIDEMIC. 346
HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD. 346
FIFTIETH ANNIVERSARY OF MASSACHUSETTS STATE BOARD OF HEALTH. 347
MEDICAL NOTES. 347

CORRESPONDENCE

DISCHARGED TUBERCULOUS SOLDIERS. *By John B. Hawes, 2nd, M.D.*, Boston. 347

MISCELLANY

NOTICES, RECENT DEATHS, ETC. 352

The Massachusetts Medical Society.

MEETING OF THE SECTION OF HOSPITAL ADMINISTRATION, JUNE 4, 1919.

THE STATE CLINICS FOR THE TREATMENT OF VENEREAL DISEASES.

BY EUGENE R. KELLEY, M.D., BOSTON,

Massachusetts State Commissioner of Health.

THE Massachusetts program against venereal diseases has now been in operation somewhat over a year. Gonorrhea and syphilis were made reportable diseases on December 18, 1917, to take effect February 1, 1918. The question of requiring these diseases to be reported had been carefully studied by the Department for fully two years prior to this action. It was the unanimous opinion of the Public Health Council and the executive staff that these diseases should not be made reportable until the Department was in a position to perform definite service in behalf of those suffering from venereal disease. The other aim sought by placing these diseases on the reportable list was direct protection of the public health by furnishing to our boards of health, institutions, and physicians, additional facilities for the detection and cure of these maladies and, in such cases as it became necessary, the authority to exercise direct quarantine control.

Because of the peculiar nature of venereal diseases it was felt wise, as an initial procedure at least, to have reports made direct to the State department of Health rather than to the local boards of health. This procedure seems to have worked well in practice; for a gratifyingly large number of cases have been reported by the medical profesion; although far below our best estimates of the actual number of active infectious cases existing. From February 1, 1918, to May 1, 1919, 10,778 cases of gonorrhea and 4841 cases of syphilis have been reported to the State Department of Health.

The primary object in reversing the usual procedure followed in the reporting of diseases dangerous to the public health, that is, having the reports made anonymously, by serial number, direct to the State Department of Health instead of by name first to the local board of health and by them to the State Department of Health, was to respect the natural desire of patients to have their identity kept secret. But inasmuch as the public interest demands that the ignorant, careless, or vicious venereally-infected person be made to recognize that he or she must conduct himself in such a manner as not to endanger the health of others, the physician is directed to report all such incorrigible cases by name to the

State Department of Health. Thereupon this Department reports all the circumstances, except the name of the reporting physician, to the local board or boards of health within whose jurisdiction such a venereal disease carrier is presumably to be found, and assists the local authorities in actually locating the individual if possible. It is not yet clear, perhaps, to all physicians that the actual police power to restrain and detain such individuals while they are actively infectious is vested by statute in the city and town boards and departments of health and not in the State Department of Health. After such venereal carriers are located they are required to attend faithfully for treatment either at State-approved venereal clinics or go to some physician selected by the offending patient who is also acceptable to the board of health and who keeps the local health authorities informed of the progress of the case.

In actual practice a large and, I feel, a constantly increasing proportion of such cases, called "reclaimed" cases, are being treated systematically and thoroughly at the clinics. This feature of our program next to the successful manufacture of arsphenamine (salvarsan) has been the most satisfactory in its actual operation.

Even making full allowance for the hundreds of physicians who are undoubtedly defying the law by refusing to report cases of gonorrhea and syphilis, the coöperation of the general medical profession has been splendid.

In the fourteen months during which the reporting system has been actually in operation the profession has reported *seventeen hundred names* as "lapsed" cases. With this information at hand our epidemiologist for venereal diseases has succeeded in bringing eight hundred and fifty of these cases back under regular medical treatment and supervision, largely by the venereal dispensaries.

When we pause to consider that in this group are a very large per cent. who, if left to their own devices, would be most active spreaders of infection, the preventive value of this phase of the work can hardly be overstated. We cannot be certain just what proportion of the total actively infectious venereal cases existing in the state during the past year our 15,619 reported cases represent, but based on the proportions of the results of the examinations of the first two million draftees it must represent a very respectable percentage of the actual number of cases existing.

The State Department of Health opens and keeps a ledger account with each registered physician in the Commonwealth of the serial numbered blanks sent to him and they are systematically checked off and credited as the reports come in. In this way a long overdue account is beginning to accumulate against some physicians. Many, of course, are retired or are specializing in lines where they never see venereal cases. But after these are eliminated there remains a group of physicians who will have increasing difficulty in convincing the health and judicial authorities of the state that they have complied with the law's requirement.

The primary basis of the State Health Department's program for venereal disease treatment is that these diseases beyond all others, save perhaps malaria, are most effectively prevented by concentrating intensively upon the already infected individual by therapeutic measures. Important corollaries are (1) the need of rendering therapeutic agents and therapeutic skill as widely available as possible to everyone in need thereof at a minimum cost: (2) recognition of the fact that by and large the medical profession cannot furnish this therapeutic service as effectively as can specialized medical experts; (3) the need of respecting the patient's desire to avoid publicity: (4) the public health obligation of properly instructing the victim of venereal disease as to the serious nature of his trouble, and the measures of precaution necessary to insure against infection of others. All of these requirements the venereal disease clinic fulfills to a greater degree than any other agency,—hence the settled policy of the State Department of Health to develop the possibilities of the clinic to the utmost and our strong desire to receive the hearty coöperation of the medical profession in general in this movement. These clinics can be utilized to a very high degree by the medical profession as a means of assisting them in diagnosis, not only by utilizing the laboratory aids the clinics can furnish them, but also by giving the opportunity to "brush up" on differential diagnosis by actually attending the clinics, and as a source from which they can secure supplies of arsphenamine for their own use, free of all cost to them and their patients.

In all, twenty clinics are in operation or planned for early establishment in twenty cen-

ters of population. When all are properly developed they will place within easy reach of at least 90% of our population expert facilities for the treatment of venereal diseases. They also serve as twenty distributing centers for the state manufactured arsphenamine. The clinics are under the direct control of men who have either long been qualified as specialists, or, in the case of some of the clinics in smaller cities, of men who have taken, and are still taking, special work in the genito-urinary, gynecologic, and syphilis clinics of Boston to better fit them for this specialized work. For the purpose of standardizing our clinic procedures and building up a spirit of team work among the medical staffs of these clinics, Dr. Hugh Cabot of the Massachusetts General Hospital staff has recently consented to serve on a part-time basis as clinical supervisor of the state-approved venereal dispensaries.

In general these clinics must be either maintained directly by the board of health, or if maintained as a part of the out-patient service of a general hospital, receive the written endorsement of the local health authorities. They must also agree (1) to serve as distributing centers for arsphenamine for the territory assigned to them. (2) keep certain standardized records, (3) maintain an "adequate" medical clinical laboratory or follow-up service, and (4) feature educational or preventive measures. Thereupon each such clinic receives $1000 annually from the State. Of course, the other expenses which must be borne by the municipality or hospital, or jointly, are in all cases much greater than $1000.

It is by no means desired to have these clinics absolutely free. The State Health Department's policy is rather to advertise them as free and to keep them on an absolutely free basis for those whose means do not permit payment. But those who can afford to pay reasonably small fees, the Department considers should be encouraged to do so, both for the purpose of rendering the clinics partially self-supporting, and as a means of retaining the clientele's self-respect. Properly developed follow-up service will soon enable the medical staff of the clinic to differentiate between those who should and those who cannot pay even small fees.

Another important function of the venereal clinic is to coöperate with the courts. This does not mean in any case that these clinics are to be utilized as means of police detection for offenders against chastity. But our judges are beginning to appreciate more and more each month that a well-organized venereal clinic can be of great assistance to them in the proper disposition of their routine cases.

This briefly states the case for the venereal disease clinic. It is worthy of note that the great majority of them are affiliated with hospitals, usually as one of several out-patient clinics, but in some cases they are being conducted, and thus far very successfully, by boards of health in rooms in the center of the city without direct hospital affiliation.

As to the extent of the actual need for hospital beds for acute venereal cases, my personal opinion and that of the executive staff of the State Health Department becomes more conservative as times goes on. The need for adequate dormitory care for convalescent ambulatory female gonorrheal carriers is a real one and is a field that is still far from properly developed. But just how far actual general hospital beds are needed beyond those now available is, I believe, a question that cannot be answered dogmatically at the present time. It is a field in which active coöperative study by venereal disease workers and general hospital administrators is clearly needed.

One thing is certain. A very marked change in the attitude of general hospital administrators is observed when the present is compared with the situation only two years ago. Three distinct methods of meeting the question are being utilized: (1) setting aside of definite wards restricted to these cases and treatment of patients infected with venereal diseases. This plan involves considerable extra maintenance charge but has many commendable features. The Massachusetts Homeopathic Hospital and the Worcester City Hospital have followed this plan, each providing twenty beds for female patients; (2) another system is to keep available a limited but elastic number of beds for venereal cases in conjunction with the general wards; in some instances there are still further restrictions in this plan. For example, the Massachusetts General Hospital assigns beds only as they are called upon for them by their own out-patient department. Peter Bent Brigham Hospital is limited both in numbers and to Suffolk County residents; (3) the third policy is followed by certain institutions which, as a rule, are available only for distinct social groups.

In this group the institution has no limit as to cases accepted, provided only that they are eligible to treatment in the institution. The The State Infirmary at Tewksbury, the New Bedford City Hospital, and the United States Marine Hospital at Chelsea are examples of this group.

Thinking such a statement might be of interest to the members of this section I have incorporated in this paper a statement of the hospital beds available for venereal cases at the present time in the State.

With regard to facilities for hospitalization, there are now available in the State at Tewksbury any number of beds required.

Massachusetts General Hospital, sufficient to meet the needs of the Out-patient Department.

Massachusetts Homeopathic Hospital, 20 beds for women, regular hospital rates.

Peter Bent Brigham Hospital, limited number, Suffolk County cases.

New England Hospital for Women and Children, 3 beds at full ward rates.

Boston has, in addition to Long Island Hospital, any number of beds required. Boston City Hospital, sufficient for urgent cases. New England Baptist Hospital will accept acute cases of venereal diseases. Talitha Cumi Maternity Home and Hospital, Jamaica Plain, takes gonorrhea cases. United States Marine Hospital takes venereal disease cases.

Fall River admits as many as necessary from clinics.

Worcester City Hospital will soon be able to accommodate twenty.

Lynn Hospital admits a few cases.

Bridgewater State Hospital, State Farm, takes venereal disease cases.

City Hospital, Fall River, takes venereal disease cases.

Franklin County Hospital, Greenfield, will accept acute cases of venereal disease.

Holyoke City Hospital, Holyoke, will accept cases of venereal disease.

Nantucket Cottage Hospital, Nantucket, will accept cases of venereal disease.

Almshouse Hospital, New Bedford, has separate building for venereal disease cases.

Chelmsford Street Hospital, Lowell, Charity Department, takes venereal disease cases.

Newton Hospital, Newton, will accept acute cases of venereal disease.

City Hospital Almshouse, Springfield, accepts venereal disease cases, free treatment.

House of Mercy Hospital, Pittsfield, accepts patients from the venereal clinic.

DISCUSSION.

DR. C. MORTON SMITH, Boston: Dr. Kelley has given an excellent outline of the State Department of Health's program for combating syphilis and gonorrhea. I wish to speak chiefly from experience in the syphilis department of the Massachusetts General Hospital. In the two months immediately following the first of March, 1918, when syphilis was made reportable, there was a distinct falling off of attendance at the clinic, particularly in old patients with late manifestations. They felt they came under the ruling and were to be reported to the State Departments of Health and in some way their movements would be controlled. After two months conditions became normal.

Our instructions, which from the first were to report only *infectious* individuals, have been carried out both in private and hospital practice. As far as statistics are concerned, this is very misleading, for from the period from March 1, 1918, we have reported 340 cases of infectious syphilis. There have been admitted to the department during that same period 1418 individuals, and 1000 patients were transferred from other departments or referred for consultation or treatment, so the infectious individuals bear a very small proportion to the total number of syphilities under treatment. Of the reported cases in 24 or 25 only has it been necessary to report the individual to the State Department of Health by name; and of these, only 18 at the present time remain, as Dr. Kelley names them, "unreclaimed." The others have been brought back to the clinic by one means or another.

I appreciate that the use of the term "venereal disease" by the State Department of Health is simply following the example set by the U. S. Public Health Commission and by the Army and Navy. The use of the term "venereal disease" by the Army and Navy seems a perfectly proper one. I have no quarrel to make with that although I have seen several cases of men discharged from the service whose infection was of non-venereal origin. For many years we had been working to divorce syphilis from the straight venereal diseases. When the fact is recognized that at least ten per cent. of all cases

of syphilis are of extragenital, non-venereal origin, it seems perfectly fair to assume this position, and the experience of the last few months would indicate that ten per cent. is too low rather than too high; this does not include the cases of marital syphilis or congenital syphilis. When these groups are added, it brings the number of absolutely innocent victims well up toward the fifty per cent. line. Of the cases I have reported in private practice, I think that a trifle less than 33 1/3% have been of extragenital infection. Some of these cases were unusually troublesome where syphilis was recognized, but the point of infection not determined or suspected. They have included primary infection of lip, tonsils, tongue, anus and abdominal wall—the lips and tonsils leading in frequency.

The State clinics should take, as Dr. Kelley states, a prominent position as teaching centers for the dissemination not only of arsphenamine but also of the knowledge of the disease, because syphilis is such an adept imitator there is hardly a skin lesion that it may not simulate. We have had quite a number of cases of pityriasis rosea sent to the clinic with the diagnosis of syphilis and a request to give arsphenamine. This resulted unfortunately for several individuals where the employer had been told the wrong diagnosis, which was promptly followed by a discharge from employment.

Certain of the benign infections other than pityriasis rosea are often confusing. There is among doctors as well as patients an optimistic tendency to consider a lesion of slight importance, calling it a chafe or boil, etc., without employing at that time a means of positive diagnosis, namely the dark field microscope. Bear in mind that practically a primary lesion of syphilis is never seen too early to apply this test successfully. The highest percentage of positive results is obtained in the early part of the primary stage of the disease, *i.e.*, during the first four weeks. From this time on the likelihood of a positive dark field diminishes while the probability of a positive blood Wasserman steadily increases until the development of the second stage, when the serum shows a positive reaction in approximately 100%.

I cannot miss this opportunity for urging study of the natural history and general characteristics of the disease as well as its various manifestations. The laboratory methods have supplemented but in no way supplanted the clinical observations; and please cultivate the habit of routine examinations but make the treatment individualistic. Take careful histories. Many feel that all syphilities are liars and that it is useless to try to take accurate histories, but in many cases a careful history is of distinct value. If a dark field is unavailable, satisfactory results can be obtained with Wright's blood stain on smears from primary lesions or mucous patches.

Consider syphilis as a chronic contagious disease rather than a venereal disease or a sex problem. The venereally infected are no worse off, and no injustice will be done the individual who is suffering through no fault of his own.

The Duty of the Hospital Trustee and His Relation to the Staff.

By Mr. C. H. W. Foster, Boston,

Trustee, Massachusetts General Hospital.

Presumably the definition which we should put upon the word duty as used in the above title is that which indicates procedure,—proper or requisite procedure. What, then, is expected of me is that I should tell you what my experience as a trustee leads me to think is a desirable procedure in the organization and management of a hospital. But as the time allotted is short, it seems best to attempt only an outline sketch of such a hospital and in the sketch give prominence only to those points which may seem most likely to lead to discussion.

Assume the hospital is a charity hospital with a charter from the State and the usual corporation officers and a board of managing trustees. This board will have the ultimate and entire control over all the affairs of the institution, will make all appointments to the staff and to the administration, and in order to keep all it affairs in hand, all appointments, salaries, and other contractual matters will be made for the current year only. Of course, one of the first duties of the trustees of such a hospital will be to make such plans as will enable them, with the means in hand, to do the greatest good to the greatest number, medically speaking, that is, within the terms of their charter as a charitable institution. The interpretation of the word "charity" has occasioned many a discussion. Formerly the pauper only was concerned with it, but nowadays

a broader view prevails. A satisfying and, it is said, a legal definition of the word charity is: "A gift in trust for promoting the welfare of the community." Now a community is an assemblage of individuals, each of whom consists of clothes, a body, and, we will say, a soul. A hospital trustee is concerned with each of these. Every member of a community, rich or poor, should have access to the hospital equipment and organization, and it would be uncharitable to deny to them this necessary privilege; but the trustees may properly and, in fact, should, divide the community in the hospital plant, in accordance with their clothes, using this word to signify station in life. This should be done not only to conform to the whims of society, but because it is helpful to a patient's composure to be placed with those of his own standard of living and to have his surroundings and food correspond approximately to those to which he is accustomed. This means that in planning the hospital plant there will be a building for people of means with luxuries to which they are accustomed; a building equally comfortable but less luxurious and expensive for people of moderate means; and third, a building for the poor. The people of means will pay full price, the people of moderate means as much as they can, while the poor will pay little or nothing. Of course, any profit made in one branch of the institution will be used to pay a deficit made in another branch,—which in the case of a charitable institution has been ruled a proper proceeding by the Massachusetts Courts. Furthermore, this seems to be a wise interpretation, for not only does it provide additional funds for the needy but by treating all classes in the community with the same medical organization there is avoided the grading of the medical profession which might take place if the rich and poor had separately chartered hospitals. So much for the clothes,—now what will be the trustee's duty as to the body and soul of the community individual? He must see that the same professional treatment, the best that is in the doctors, is given to each and every patient alike, no matter what the clothes; and as to the soul, he must insist that sympathy, kindness, and tender care to all must be atmospheric in every part of the hospital.

Something now of the hospital organization: There will be three divisions:

1. *Professional*—having to do with the treatment and direct care of the patients.

2. *Administrative*—concerning the housing, feeding, and financial questions of the hospital.

3. *Educational*—and Scientific Department.

The Professional Division will have
The Medical Director,
The General Executive Committee,
The Resident Physician,
and the staff nurses, orderlies, etc.

The Medical Director. He should be a man of prominence in the profession. He will be appointed by the trustees and by virtue of his office will be chairman of the executive committee, but without a vote. He will be expected to concentrate all his professional activities at the hospital and may receive a salary. He will be the principal adviser of the trustees as to the medical policies of the hospital, will represent the hospital on important medical occasions, and meet medical men of prominence, and, in general, will concern himself with the medical progress and reputation of the hospital. He will take a paternal interest in the physical welfare of the hospital people and harmonize and inspire the professional work going on in the various departments. He will have no routine duties but will have authority to order the resident physician or administrator to suspend any person or action until the matter can be referred to the executive committee or trustees. In regard to the professional activities of the hospital, he will not only be considered as having every authority to investigate and interview, but he will be expected to do so—with the idea of coöperating as well as of becoming informed.

Executive Committee. It will consist of seven members, the two chiefs of the medical services, the two chiefs of the surgical services, two special department chiefs, and a junior medical or surgical man. The latter member will hold the office only during his months of service and the medical and surgical will rotate in filling the position. The medical director will act as chairman and the resident physician as secretary, without power of voting.

Resident Physician. He will have the immediate superintendence of the medical and surgical departments, except as to the direct treatment of patients, and the control of internes, externes, nurses, orderlies, and apothecaries. He will admit and assign patients to the hospital and will in general see that the rules of the trustees and the orders of the doctors as

to the treatment of patients are carried out. He will give his whole time to the hospital and will be paid.

Administrator. Before making mention of the staff, let us say a word in regard to the Administrative Department. The head of this department will be the administrator. He will be appointed by the trustees, upon nomination of their finance committee and treasurer, whose agent he will be in regard to all money matters and accounting at the hospitals. In general matters he will be accountable to the trustees, through their chairman or committee. He should be a man of business ability and experience. He will have charge of the plant and building operations, and the housing, feeding, purchase of supplies. He should create a budget of the income and expense at the hospitals, keep the various department heads informed concerning their part in it, and in general coöperate with and advise the hospital people as to proper financial transactions. All financial procedure at the hospital will be from the trustees through their finance committee to the treasurer, and thence to the administrator. Any difference of opinion or doubt regarding a money matter at the hospital will take a reverse course.

Staff. The trustees will generally ask the executive committee for nominations to the staff positions but will reserve to themselves the right to appoint any other candidate. There is an endless discussion as to the composition and duties of a staff, but let us accept this form. There will be two medical services, each with its chief, and two surgical, each with its chief. One medical and one surgical will be continuous services, the others will be so-called clinical services, in which each participating doctor will serve only a certain number of months per annum. The welfare of the community will find a distinct value in each type of service. The continuous service will provide the better opportunity for research work and the training of men therefor, while the clinical service will enable a larger number of men to get the hospital training necessary to a proper medical experience and time to engage in private practice. The introduction of a continuous service plan brings up instantly the question of a living for those who under this plan will give practically their whole professional time to the hospital. The clinical service men, with their short hospital services, will still have time for a remunerative private practice, but how to provide for the continuous service men is the question. One plan is that the latter will be given the preference in the allotment of patients coming to the building for people of means and to the building for the great middle class—both of which classes will pay a professional fee. Furthermore, in some just way the hospital should regulate the fees and collect them for these full-time doctors and thus relieve them of the thought of a living and give them full time and thought for their professional research work. There is plenty of evidence, at least here in this eastern part of the country, that there is being lost through two sources an ample living for all the continuous service and research men who might wish to work in the hospital. That is through the abuse of medical charity and through the fact that the hospitals have not provided accommodations for people of moderate means who would willingly pay a moderate professional fee. There is no question but what there are hundreds of would-be patients who are actually avoiding treatment and suffering thereby because they cannot afford the modern-day costs of specialists and expensive medical needs. These people must be treated in some such cooperative way as is possible in a hospital, and in that way save professional time and other costs. And in regard to the abuse of medical charity, there is the legitimate and the illegitimate charity; the former where the doctor gives up his fee to get for his patient the hospital treatment, and the latter where the patient pretends to be a pauper in order to get something for nothing.

A word or two as to the duty of the trustees in their appointments to the staff. Experience seems to show that in the long run it is good policy to fill vacancies on the staff by promotions, but not necessarily by seniority. But the prestige of the hospital will fall under this plan unless the greatest care is taken in the earliest appointments. The right sort of a reputation and the proper traditions will be maintained only if good judgment is shown in the selection of the young men and opportunity and encouragement are given to them to develop. It has been contended that this plan of promoting from within is liable to make a nonprogressive and self-satisfied staff and that it

is stimulating to introduce new blood by an occasional appointment from without, and there are notable examples where this has been true, but much of this stimulation might be obtained by inviting celebrated medical men to visit, lecture, and operate; and perhaps even there might be some sort of an exchange professor idea as in vogue between colleges.

Educational and Scientific Division will include the various laboratories, x-ray, and special investigation work, autopsies, record rooms, medical libraries, and the relations of the hospital to medical schools and other medical institutions. There will be a committee of at least three from the men in the hospital most interested in this work, and this committee will study the welfare of the division and further its development. The chairman will be appointed by the trustees and with others in this division, if continuous service men, should receive in some way a living from the hospital. The medical director should either be a member *ex-officio* of this committee or at all events be in constant touch with its doings and the men concerned; for as the principal medical adviser of the trustees, he will find in this department the force which attracts the young men of greatest promise and through its discoveries, the making of a great reputation for the hospital.

A final word as to the personal relations between the trustees and the staff. On the part of the trustee let it be that of an intensely cooperative paternalism,—which will show firmness when needed but which will aid and encourage to an accomplishment the ambitions and efforts of the members of the staff. But it must be a just and considerate paternalism. It must recognize the fact that the doctors and hospital people are human, that they are, as a rule, overworked, and that as to money and recreation they are denied their fair share. Their compensation lies largely in the success of their work. The trustee must establish standards which will create respect and make effort worth while, then encourage all hands to forget themselves in the accomplishment—and we will have a real hospital both in name and spirit.

The Relation of the Medical Staff to the Trustees and Its Duty to the Hospital.

By Edward H. Nichols, M.D., Boston.

The duties of the medical staff and of the trustees are reciprocal, and not opposed. This fact is not always appreciated, for sometimes the two bodies appear to act at cross purposes. When staff and trustees do so act, it always implies lessened efficiency of the hospital. It should not be a question as to which body has the greater authority—it is a question as how best to divide authority to produce the best administration of the hospital for the benefit of the patient. Some of the duties are obviously divided. The trustees naturally should have entire charge of finances—partly because doctors, as a class, are notoriously poor business men. The "hotel" end of the hospital also should be entirely in the hands of the trustees—that again is a purely business proposition. The doctors must have entire control of the medical and surgical care of patients as that is purely a professional question, about which trustees, as a class, can have no intelligent understanding. When it comes to questions of hospital policy, for instance, what classes of patients should be treated, how cases are to be assigned to hospital services, the relations between friends of patients and the hospital, the question of free or paying patients, and many similar questions, the best of advice of both trustees and staff is needed to settle these matters wisely, and such questions should be settled only after conference of both bodies. Any assumption by either body that it possesses sole authority and wisdom, is likely to lead to a one sided decision, dissatisfaction, friction, and inefficiency. While it may be said that legally trustees have the greater authority, it also is true that the medical staff is what makes a hospital first class, mediocre, or poor. A good board of trustees with a poor staff cannot make an efficient hospital. Yet a board of trustees composed entirely of medical men is very undesirable—on all hospital boards of trustees, the medical men should be in a distinct minority. Therefore, for an effective hospital, trustees and staff must coöperate.

What does the staff owe the trustees? Primarily, professional work done to the best of its ability. Members of a hospital staff are given unusual clinical opportunities which should make them more competent than the general run

of the profession which does not have those opportunities. One often hears of the "sacrifices" made by hospital doctors. It is true that the medical staff does sacrifice time and strength to perform its hospital duties—but the gain from exceptional opportunities outweighs, in the minds of most men, the sacrifices. If that were not true the desire for hospital staff appointments would not be so great. Hence, the staff having exceptional opportunity, owes exceptional duty. Occasionally individuals seem to forget this, and act as if the obligation were all on the side of the trustees. When a staff man reaches this very undesirable and erroneous frame of mind, it is time for the trustees to correct his judgment, or to allow him to retire to other fields of activity. He has ceased to be of value to the hospital.

The first one to be considered in a hospital is the sick patient. The trustees are responsible for the administration of the hospital—any lack in the care of the patients is a reflection upon the trustees. So the treatment of the hospital patients must be as careful, intelligent, and industrious as the care of private patients. The trustees should make it possible for the staff to give such treatment to many patients with the least possible effort, strain, or loss of time. If the trustees do not assist in this way, they are as remiss in their duties as is the staff man who performs his hospital duties in a perfunctory, careless and indifferent way. If a hospital can be so administered as to make it possible for the staff to have private hospital patients treated in the same hospital, it saves the staff's time, will almost certainly raise the standard of hospital treatment, and condenses the staff's interests; and this should be done when possible.

The staff owes the patients the same degree of judgment, sympathy, and consideration as would be shown private patients. If the staff treats hospital patients merely as routine work, with no consideration of the individual case and circumstances, it may obtain a clinical success, but an individual calamity. Hence, the staff must consider the circumstances of individual cases.

The staff owes the trustees economy. The trustees pay the bills, and must raise the money. It therefore is incumbent on the staff to request large expenditures only after mature consideration and deliberation, not to demand the purchase of every fleeting fashion in hospital equipment. On the other hand, lay trustees cannot be expected to appreciate the value of many things in hospital equipment, which to the staff clearly are necessary. Hence, it is duty of the staff to educate the trustees along these lines. An equipment that was adequate about ten years ago would be quite insufficient today. The hospital has ceased to be merely a boarding house for sick people cared for by intelligent doctors—the physical equipment of a mediocre hospital is today expensive and elaborate.

In one particular the staff must of necessity be better informed than the trustees. The staff cannot help knowing better than the trustees the professional value of new additions to the staff. From an experience of many years in considering the appointment of new men to the staff of a large municipal hospital, I can truthfully say that never have I seen a man nominated by the staff for a junior staff appointment who was chosen except after most careful consideration, and after a conscientious attempt to select the man who would be best for the hospital. The trustees occasionally may be influenced by some glib or insinuating individual of the staff, or by some personal prejudice. If that happens, and the trustees attempt to interfere with the nomination of the staff, sooner or later the staff deteriorates. The only basis on which the trustees should interfere with the staff nominations should be on a question of character. The staff may not be infallible, but they bring to this question far more intelligent judgment than the trustees can. The staff must live with the appointees once they are elected, and in theory, should, and in fact, does exercise most careful judgment. It also should be made clear that an appointment to the staff is not a life appointment, but only during good and effective work—and the staff should be the first to request to be relieved of the presence of men who have outgrown their job or ceased to be interested.

The staff owes it to their special opportunities to add to professional knowledge, both by publishing the results of their special opportunities for clinical study, and by teaching either their professional brothers, or medical students. It sometimes happens that trustees cannot see the necessity and value of teaching, especially if the teaching costs the hospital money. It is true that the presence of students in any form is a nuisance in some ways, but their presence should be encouraged, nevertheless. Teaching invaria-

bly raises the standard of clinical work in hospitals. There is no judge so critical as a class of half-trained medical students,—they compel a doctor to do his best. The medical information of any individual in such a class may be small, but the aggregate intelligence is astoundingly great. It may be possible to conceal ignorance before such a class once, but he who attempts to conceal ignorance often is sure to be detected. The teacher must be on his mettle; he is compelled to think clearly and to act intelligently. Hence, teaching is one of the very best possible means of maintaining a high grade of work by the staff. Good teaching is not easy—the trustees should offer every facility to staff teachers. A man who neither writes nor teaches cannot justify his continuing to retain his appointment.

The relation between the staff and patients or friends of patients is of necessity close and one of the most frequent causes of criticisms of hospitals. When friction arises it is, as a rule, the trustees who have to bear the brunt of the criticism: hence, it is the duty of the staff to use judgment, tact, and sympathy in dealing with patients and their friends. The trustees should not be expected to be the buffer in cases of complaint—the staff is much more likely to be considerate and careful if complaints about staff treatment and conduct are passed up to the individuals whose treatment or conduct is the cause of criticism, and if the offender is held accountable for his errors.

The duties of staff and trustees are in many lines closely related. Since this is so, it is essential that both bodies or selected representatives should often meet for discussion of matters in which they both are interested. In this way community of interest and mutual understanding are promoted, and intelligent action by both bodies is insured. This is one of the most important arrangements for intelligent administration of a hospital.

When an individual member of the staff finds it impossible to act in concert with his professional colleagues, it is clear that he has ceased to be of value to the hospital and either the disgruntled man or his colleagues should be removed. Nothing so rapidly leads to deterioration of the staff as an injured, disgruntled member of the staff.

The relation of the staff to the house officers is important. The staff cannot assume that the house officer is a worm worthy of no consideration upon which everyone may tread. Large, modern hospitals depend upon the house officers for efficiency. The house officer must perform much arduous labor; in return he has a right to much consideration, and real interest and education from the staff. It is not enough simply to allow the house officer to bask in the light of the great man's presence; the house officer must be given an education in return for his always trying hard work.

DISCUSSION.

DR. H. B. HOWARD, Boston: Of the two papers the latter considers the organization as it has been for a generation at the Masachusetts General Hospital and at the Boston City Hospital. That is the organization that we here in Boston have been working under for a long time. I used to say that the hospital always considered first, the needs of the patient—the patient was uppermost; second, that it helped medical education; third, that it should advance medical and surgical science so far as possible. The old organization had some particularly strong points. It must have been pretty good to gather together and hold such a staff. You would have thought perhaps that the trustees existed first. I suppose that in both of these institutions the staff was the first thing that existed. They found out that in order to have a hospital they must have a board of trustees—something to take care of the business end—men who understood finance, men who understood how money should be expended and had common sense in that direction. The first people you find to create such a thing were physicians and they were the organization before the hospital was built. Go into the history of the City Hospital—it was the same thing before that was taken up by the City Government. It was a foregone conclusion that they were the nucleus of the staff. This organization in both of these places has gone on all these years, one since 1820, very largely adopting the advice of the medical and surgical staff of that place. It has been very rarely that the advice of the medical and surgical staff has not been adopted. It has been avoided just often enough to let the staff know that the board of trustees had common sense, and that the advice of the staff must be well considered or it would not be adopted. I won't say that there was never a case when the staff was in the right and did not get what they wanted, but on the average when their advice has not been taken, it was when they were wrong. The members of the staff, I think, will agree to that. Old Doctor Hale used to say that the greatest word in the English language was

"together." There is a board of trustees; there is the executive; there is the medical and surgical staff. The great thing is to get those three separate organizations, all of which have good, normal, healthy functions, to work together. I do not mean by that that one should not frankly criticize the other. Frank criticism by the one or the other is what brings progress; but this old organization of the City and the Massachusetts General does not need to be radically rooted up and thrown out of the window. It needs to be studied, strengthened, amended, and have a legitimate growth so that it shall gradually grow stronger. This medical director man at the top, whom Mr. Foster explained as he read his paper, I wondered where he could get such a man and if we were sick of him or he could not do his job, well, where would he go? Because he would feel that his calling was gone. Or, if we lost him, where would we get another? If you put a man on that apex and he does not fill your bill, what is he going to do when you get through with him? He cannot practice medicine, his practice is gone. Where are you going to get another? It is not a profession yet. Now, some hospitals have such a man without his ever being appointed. Johns Hopkins Hospital has had such a man who has practically assumed that place from the beginning. He is a wise, careful man, and what he has thought out and talked over with the various staffs, the executives, and the board of trustees, is the thing that has been always carried through. He has never drawn a salary from that position. Gradually he has advised that institution, and his advice has been taken for other large places. The Massachusetts General Hospital and the City Hospital may develop such a man, but you cannot go and find him and put him there without driving out men that never ought to be driven out.

There are some things that have not been worked out well at either of these places. This afternoon there is not time to bring up all these points, but there are some things that have not been worked out well. I will be frank about it. There are splendid ideas in the younger men of the staff all along the line, but they rarely get up for proper consideration out of respect to their chief. They never can get up without their chief. There ought to be some legitimate way by which bright ideas lower down the line could get up for discussion. I have seen them in my 25 years of experience in general hospitals smothered many a time—ideas that I would like to have been father of—ideas that I would like to have been the first to have thought of. I say that along that line there could be considerable work done so that those things should come up legitimately. Perhaps it is because I have worked so long under that old organization that I still think the trustees, the executive, the staff, is a pretty good form of organization, and it needs to be studied before it is changed very much. No man can be on that apex job without duties and be worth much for any number of years. He will soon lose his ability to give advice and to know what advice of others should be taken. A man has got to be a doer in order to be the proper one to advise the rest of the staff and the trustees. He has got to be in close touch with the way things are done. I know there are lots of good men in Boston, but I do not believe it is possible to find a man in Boston to put on this apex job at the City Hospital or the Massachusetts General Hospital or the Brigham Hospital who will have any sort of reputation with staff, trustees, or anybody else at the end of two years, if he is any good. He would lose his reputation if he were any good. He would have to be a man who was steadily catering to somebody in order to hold on to his position. Apparently one of his duties is to meet big men. Now, big men, when they come to the hospital, do not give a snap for anything like that. What they want to see is what the hospital is doing, how the medical and surgical work is carried on, how the patients are cared for—that is what they are wanting to see. I have never felt so much pride in anything I have done as when a man has come back the second or third time to look over what we were doing, after he had gone away and made his notes and had not got things quite clear, and came back to get them straight. Just before this war broke out I nearly lost my head temporarily because an old German inspector of hospitals came to look over a hospital which I had much to do in building and came back for the third time to study the plans of the typical ward. It was the greatest compliment that had ever been paid to me; he did not come to see me, but to see what had been done. Now, any man that has got to the prominence of occupying this apex position I don't believe will ever have time to do anything so that people will want to come back and look at it.

I have in my pocket a little pamphlet which was written by a man who gave me a great deal of advice and spent lots of hours to help me—George H. M. Rowe. He wrote and delivered this on October 14, 1902, in Philadelphia: "Observations on Hospital Organization," paper by George H. M. Rowe, M.D., superintendent of the Boston City Hospital; presented at the fourth annual meeting of the National Association of Hospital Superintendents, in Philadelphia." I want to read one sentence from it, "Yet, after all that has been said, when you come to the vital point of hospital organization and management, whether the executive be strong or weak, whether the staff is distinguished or mediocre, whether the funds are ample or barely sufficient to produce results, the ranking of a hospital depends on the character and ef-

ficiency and determination of the managing board more than on any one thing." He goes on to say that you need a strong medical and surgical staff also; in fact, takes up pretty carefully the whole relation between trustees, executive, and staff. All of us who knew Rowe knew that he believed in frank talk, and when you left his office you knew what was in his mind. You never left with the idea that he covered up anything from you. He was not always pleasing, but he was frank. He did not spend all his time in being affable to us, but no one ever questioned the old man's integrity. If any one of you is studying hospital management and organization, it is worth your time to read that little pamphlet.

We can't condemn, and should not condemn, offhand, Mr. Foster's organization. All organizations ought to be tried, perhaps, but an organization that has got together a staff like that of the Massachusetts General Hospital and has held it towards a hundred years is worth study as it stands. I won't say it can't be strengthened. Nothing is so good that it can't be improved, but it should be a long time before we should interfere radically with that organization.

MR. C. H. FOSTER, Boston: I agree thoroughly with everything that Dr. Howard has stated. I think that my use of the words, "medical director," has brought out exactly the thought in his mind that I had in mine. That there is great need of some concentration of the activities, professional activities in the hospital, in some one person who is available and is known to everybody as being the one you should consult in regard to the professional matters. I used the term "medical director"; we can use any other term. I think, perhaps, you would agree with me that if such a person were to be hunted for, we all of us could think of some one man immediately who would be glad to try such a business. I would not hesitate a moment to see Dr. Howard try such a position. I do not agree with him that there are no men able to do that sort of work. He should be a man who has reached the eminence of his work and perhaps is about to retire.

I think that perhaps what Dr. Howard has said in regard to giving the young men a chance is one of the truest things he has said; and I think if there is any way we could introduce such a man as is outlined in my title, "medical director," who could be of value to all concerned, he would be of great value to the hospital.

The organization of the Massachusetts General Hospital would not be changed at all by such a position being originated. In fact, it exists now, except that we have not expected of the chairman of the executive committee the various duties and thoughts which I have expressed. That is all.

DR. HENRY A. CHRISTIAN, Boston: This question of hospital organization is one of the greatest importance to the welfare of our hospitals that can be brought up. Organization on paper is not worth much. The only value in organization is in so far as it is able to procure the best men for the job and give those best men the best opportunity in their work. Mr. Foster has described a purely local organization, good, no doubt, for that institution, probably inapplicable to most other institutions because most other institutions are different—have different problems, have different purposes, work differently, and have a different personnel.

The keynote that would be expected from the titles of the two papers would be the relationship between trustees and staff. Almost nothing has been said by either speaker on this topic. Why? Largely because there are no relationships between trustees and staff. I do not mean that there are no opportunities for formal proposals from the one to the other, but no chances for mutual discussion. At present there is very little opportunity for the staff to learn the workings of the minds of the trustees and to gain for their work the very excellent suggestions that necessarily would come from contact with that body, and vice versa. There is just the opposite lack in the other direction. Now if we are going to accomplish a great deal, it is going to be by cooperation. That has been referred to, but how are we going to have coöperation if we do not have a great deal of opportunity for contact?

I have been interested greatly in this question of hospital organization. In one way or another I have worked in Boston hospitals rather differently from most members of the staff of these hospitals because, except for the period I was at the Carney Hospital, I spent all day of every working day in the hospital in which I was working, and I worked in these hospitals in various capacities:—two years at the City Hospital as pathologist; two years at the Massachusetts General Hospital as a ward teacher; five years at the Carney Hospital as visiting physician; and six years at the Peter Bent Brigham Hospital as physician in chief. This should have brought me in contact with trustees. In these various capacities at various periods in my life actually I have had very little contact with any hospital trustee, and most of them I have just known by sight. At present I but rarely see the trustees of my hospital.

It seems to me what we need is an opportunity for the staff and trustees to meet and to discuss questions, not necessarily because the staff is going to teach the trustees a great deal, not because the trustees are going to teach the staff a great deal, but because by mutual discussion the institution is going to profit greatly and a greater coöperation and a greater possibility of advance is going to come. I do not believe we

are going to have that relationship in any form of organization until that time comes when members of the staff, chosen by the staff, sit regularly at some of the meetings of the trustees and share in their discussions, and in the same way members of the board of trustees sit regularly at some of the meetings of the staff or its executive committee. That has not been done in any institution with which I am familiar. It seems to me it would be a forward step. I do not mean to make a member of one body a member of the other. I do not mean to have them present at all meetings, because naturally questions come up that can be discussed better in the absence of a representative of the other body. Members of hospital staffs at present have very little opportunity to know their trustees and to get them interested in the work of the hospital and to get them really to know the institution; and, most important of all, to have them actually advise as to good methods—better methods of accomplishing the work. I would make that suggestion as a possibility of improvement and an advance in the present relationships.

Dr. P. E. Truesdale, Fall River: About a month ago I attended a meeting at Hyannis, the purpose of which was to encourage a proposition by the local medical men to build a small hospital. In this small community physicians were doing precisely what had been done in Boston more than a century ago by Dr. Holyoke, Dr. John C. Warren, and Dr. James Jackson, when they advocated the construction of the Massachusetts General Hospital,—medical men thus proposing to meet the hospital needs of the community. The repetition of similar movements since have been innumerable, and yet today it is unusual to find medical men on the boards of trustees of large hospitals. Surely medical men with special training are familiar not only with hospital planning but hospital management as well. Lawyers plan courthouses; manufacturers plan and operate their mills. Why should not physicians share the greater responsibilities of hospital trusteeship? On occasion it appears to be a policy among trustees to eliminate the physician in hospital affairs that are not purely clinical.

Dr. Howard has observed that not infrequently bright ideas come from young men, and without doubt he, himself, has utilized them with discrimination, but as a general rule the ideas of the younger staff members seldom become known to their hospital trustees. Would it operate disadvantageously if hospital trustees were to add one or more physicians to their number? Would it not serve as a line of communication between the responsible heads and those who are in immediate contact with the sick, those who are engaged in working for the welfare of the sick?

Coming from another part of the State, I cannot speak from the standpoint of an individual who has intimate contact with large hospitals, but we all know that one of the most progressive and productive hospitals in the United States today, St. Mary's, of Rochester, Minnesota, was planned by doctors, and its policies are directed by members of the profession. What is done in Boston in hospital affairs lends considerable influence over a very wide range of the country. We look to you for advanced methods of organization and direction in order to improve our hospitals and to do what we can to elevate the standards of medical and nursing service in caring for the sick. When we are informed here that in your large hospitals there is little or no communication between trustees and hospital staffs we are not amazed to learn that there are disadvantages thus incurred and all does not work well under such arrangement. May we not look forward to a solution of this difficulty as well as many others in order to keep the standards of hospital service on a high plane?

Dr. Thomas Ordway, Albany, N. Y.: I had not intended to say anything this afternoon, but I want to point out one of two difficulties about the representation of the staff on the board of trustees. If there is going to be any representation, it seems to me that it should be adequate, for a single medical representative on the staff might, by talking in technical terms on certain medical subjects, express opinions which would be very misleading to the board of trustees. On the other hand, when two members of the staff are on the board of trustees, these two members may have opposing opinions and express these opinions rather emphatically; this may lead the board of trustees to think that the staff cannot agree and then they are apt to disregard the opinions of both. Therefore I would suggest that, instead of the representation of one, or even of two members of the staff on the board of trustees, the entire medical board of the hospital (which should be small—six or seven) meet regularly with the executive committee of the board of trustees, as these two bodies are, or should be, representative of the staff and administration on the one hand and the board of trustees on the other.

The other point under discussion about opinions and suggestions of the younger members of the staff reaching the board of trustees: It seems to me that when the medical board of the staff is formed properly, a member acts as representative of each major department of the hospital organization on that board and, therefore, it is his duty to have free discussion with all members of his own department and present their suggestions to the medical board at the joint meeting of the latter with the executive committee of the board of trustees.

Mr. C. H. W. Foster, Boston: There has

been constant reference to having a medical man on the board of trustees. The Massachusetts General Hospital has had one ever since I can remember and has one today. Dr. Walcott was on the board for a great many years, and Dr. Tuttle has just been elected to fill Dr. Walcott's place on the board. And the committee of the Massachusetts General Hospital meets with the executive staff once a month. I just want to correct the wrong impression which seems to be going around.

DR. H. B. HOWARD, Boston: I want to call attention to one thing—a medical man on the board of trustees has proved a great drawback and has proved a success. Now a medical man on the board of trustees of the Massachusetts General Hospital has not been at the same time a member of the staff. It is very important if there is a medical man on the board of trustees, that he should not also be on the staff. Where a man has been a member of the staff and a member of the board of trustees, I have never seen that arrangement work well. I won't say it never will, but I have never seen it work well. The other members of the staff are jealous of him right off, and generally he is a little unfair. He always has the reputation of being so.

DR. HENRY A. CHRISTIAN, Boston: I would like to correct the mistake I made about there being no meetings of the members of the staff with the members of the board of trustees of the Massachusetts General Hospital. Mr. Foster has said that such meetings regularly occur at the Massachusetts General Hospital; but he informs me that they have just started these meetings and they have been in effect only a short time, and hence my error in not knowing about them.

RECONSTRUCTION HOSPITALS, MILITARY AND CIVIL.

BY FREDERIC J. COTTON, M.D., BOSTON.

A RECONSTRUCTION hospital is one designed and run to produce end-results,—focussed, not on anatomical but on functional cure.

Its aim is curative and only incidentally, if at all, vocational, though work is one of the methods of cure.

Its aim is economic, but its work curative only.

It aims not only to do medicine and surgery but to cover that no-man's land between the time that a man is technically cured and the time he begins to be good for something.

Reconstruction means *doing* the work of cure instead of half doing it or only starting it.

The reconstruction movement, like the movement for hospital efficiency, Codman's drive for the end-result system, the standardization movement of the A.C.S., means that we need better work, completer work, than we have been doing in our hospitals, and it means that the special problem of the wounded—the potential cripples of the war—has jarred us into action.

A few have long known that only by shifting our point of view to the *results* end, and coördinating surgical and allied staffs to reach that end, and coördinating them under leaders really interested in that end, can real results be achieved.

Now the war work has brought a test, and proved openly what the few have known.

Now everybody knows it, and we are calling the work reconstruction, and the time is ripe for application of the lessons of the war to civil life.

That the war hospitals in this country should show, as they have shown, results in the way of functional restoration beyond all experience of us old hands in civil hospitals, is a marvel.

That it should have been accomplished under the tremendous handicap of military-medical management, with its over-centralized control, under the uncertain tenure of all sorts of ever-changing officers, under the assaults of self-interested and faddist folk of many kinds, from water-curers to Freudian and other psychologists,—that this could have been so done as to show the results actually accomplished, only further proves that the central idea was right.

Let us not make the mistake of considering the work done in the war a military matter only, or a result of discoveries or experience.

Save for the Carrel-Dakin treatment the discoveries have been almost negligible. Save for the vast need and the vast resources in money and men to meet the need, the war has nothing to do with it.

The sole advantage has been that the hospital problem to be met has been one of wounds in healthy men,—a limited problem of large possibilities, and that the great need and the great resources have made conditions fluid to meet this problem and to organize for results.

New institutions had to be reared—and could be—free from hampering traditions, and in a couple of years it has been possible to go farther than in a decade of peace.

But the principles are not a war matter, nor new at all.

Indeed it is curious to note how little the plans first laid out have needed change up to today.

Two years ago Dr. Brackett and I came before the council of the Massachusetts Medical Society with a reconstruction program which we, with Dr. Goldthwait, had worked out, based on our knowledge of the problem and of the excellent work that had been done by French, British, and Canadians, to cope with the problem as it has come to them.

This was the first public appearance of the "reconstruction" idea in America.

This was the program now being carried out in the hospital of which I have had the honor to be chief of staff until a few days ago,—U.S. Army General Hospital No. 10, on Parker Hill, Boston, and in two score other centres.

This is the plan I want to see put into civil practice here and elsewhere.

This is the plan that I want to see put to the reclaiming of our great army of cripples and part cripples in the community, whether they have fought in France or got their hurt in a factory or on the street.

And I expect to see it.

What is this plan?

First let us see what has been done and is being done.

For the moment let us go by the acute immediate surgery,—admirably done in France, not badly done here.

Let us take the man with a shattered thigh,—past the first operation, past great chances of death, but infected, ill, facing the chance of life-long disability. Long before he comes back home he has had every care taken by wise splinting and other detailed care to avoid preventable deformity,—and by disinfection and dressings to lessen infection.

He gets home here to a fixed hospital—to stay till cured.

Here he comes into an institution in which the chief-surgeon is responsible. Under the chief is the sub-chief of the septic division, who becomes personally responsible and he obtains promptly:

1. The history.
2. The examination.
3. The x-ray.
4. A culture.

The sub-chief is not an assistant but an experienced surgeon.

An operation is necessary: the sub-chief does it in his own operating room. Carrel-Dakin treatment is instituted,—he does the dressings or oversees them,—the solutions are made daily by an expert pharmacist under the chief's supervision. The nurses tend to the instillations, *regularly*—that is their job and they wouldn't last a day if that didn't take precedence over ward-bed making, in case of conflict of the two.

One of the assistants with us is a real orthopedist—responsible for the many bits of apparatus needed in these cases—responsible for getting them from the shop and fitting them to do their appointed service.

Presently the time comes for physio-therapy, massage, and for the occupational bedside work that has proved so useful.

Prescriptions are written for this work, and it is done under the surgeon's eye even though by members of other departments. Later, the man is ready to go to the physio-therapy rooms, —perhaps to limber his knee—but he goes on prescription, on daily visits, and is not transferred from the ward.

That is the point,—from the day he comes in till he is healed and solid, and well—he is under the jurisdiction of one man who is responsible for him, under one ward surgeon charged with his detailed care.

He is not shuffled off into an out-patient department and lost.

Suppose it is a nerve case, the patient is assigned to a nerve ward and comes under the neurologist or neuro-surgeon, as may be.

In our clinic it has been the neurologist who overhauls the case and dictates the treatment or calls in the surgeon.

Given an operation, the surgeon does it and sees the patient through the first period, at which time he is already on a splint, previously prepared through the orthopedic surgeon in the shops.

From this point the neurologist is the man in charge, following out his tests, dictating to the physio-therapy aide the bedside massage and electrical treatment and later the exercise work,—dictating the occupational work indicated later on in the game. Here again until far along in convalescence the patient is under *one* head.

In amputation cases the head of the amputation clinic is in charge of operating work, of fitting the limb, and orders the massage and baths, the stump-drill, and the exercises.

So with the other cases, classified or not,—one man is in charge throughout and the principle I have harped on for years—the principle of continuous personal responsibility— is finally, for once, really effective,—and I am willing to stand by the comparison of results.

The hospital of this sort is necessarily going to have a competent staff but no larger outfit than one often meets, though better trained and equipped than is usual.

The thing that is different is that one man, or at worst one chief and one ward-surgeon, take the responsibility for the patient and this crew sees him through.

All the work done for him by many people —skilled each in his or her branch—at all stages from entry to cure—is done under the authority, on the prescription, with the interest of one man.

This man is not trying to do the most operations to unload on the out-patient department so he can write about them,—he is concerned in getting John Smith well,—ready for discharge, ready to take up life or retraining as may be, as good as he can be made.

Notable work has been done in detail.

The handling of septic bone-wounds has been marvellously successful,—amputations have been admirably handled and outfitted, wonderfully good crews of physio-therapy workers have been gathered and trained, expert in bath, electrical massage and exercise treatment, and admirable work done in occupational therapy, not only at the bedside but at the bench, work of great value in physical cure as well as in restoring morale.

But, fine as all the departments have been, one must remember that the best part of it all is that they have been doing *team-work* with one definite object—the object of cure—the object of producing a really complete specimen of John Smith, reconstructed as far as can be done, and ready for use again.

And that is why so large a majority of our boys are made 100% fit for what they want to do.

I am not going to weary you with detail or statistics, if you want to see you will be welcome at No. 10. All you need do is climb the hill and you can get all the detail.

What I want to do today is to ask you how we can secure for our civil work the advantages of a war hospital and get something like the war results, as we have *not* done in the past in civil life.

It is possible to teach old dogs some tricks, but old institutions, never, and I believe our problem is to erect new institutions or better yet, take over those now doing army work in reconstruction—to take advantage of special equipment if we can, of specially trained workers at least, particularly the wonderful women-aides, and to follow out the military plan as it lies for non-military work, till we learn how best to modify it.

It has been too good to change till we know why and how.

In many communities this matter is going to be difficult; because hospitals must revert to title holders, and staffs inevitably scatter.

For this district the Elks Hospital was built for no other purpose than reconstruction and is probably available, though details are not yet worked out.

Moreover, with a premonition of this problem, No. 10 has largely been staffed by Massachusetts doctors, nurses and aides,—they are available.

Let us hope that Massachusetts may lead again, and that this may be the birthplace of civilian as well as military work in effective reconstruction,—work for the cure of the disabled.

A few years ago a well-known, rather ultra-scientific head of one of our institutions told a young applicant that what he really wanted was not a chance in the institution in question but a job as house officer in the ——— or ——— hospitals,—"one of the repair-shops."

In this community we are not likely to lack for alleged scientific work,—what we need most is the human "repair-shop."

We have learned repair work under the stress of war—let us see that peace shall also have its repair-shops and have them run at near 100% efficiency.

CASE RECORDS AND HISTORIES IN THE SMALLER HOSPITALS.

BY HORACE P. STEVENS, M.D., CAMBRIDGE.

THE value and need of an adequate system of case records for every modern hospital is so well recognized and generally appreciated that

it hardly seems necessary for me to dwell upon it here.

Apart from their importance in cases of tort, as a means of protection in suits for alleged malpractice, and in all other medico-legal controversies, their paramount value is found in their direct service to the community. This community service is brought about in two ways.

First, through the study of methods and results as shown in the records, the hospital is able to give better and more efficient service, and, second, by giving convincing evidence of efficiency and an available measure of its service the hospital can seek and obtain more confidence, respect, and generous financial support and thus extend its scope and increase its ability to serve.

Another point of no small importance to hospitals which conduct training schools is the effect of good records upon the efficiency of the nursing. It is obvious that an institution having well kept records will, other things being equal, turn out better nurses, but further, since the laws for registration in many states require training in institutions fullfilling, among other obligations, proper standards of record keeping, such institutions will prove more desirable and will tend to attract a higher type of applicant.

In the larger hospitals great numbers of patients, frequent re-entries, complete laboratory facilities, and so forth, require, and larger house staffs and clerical forces permit, the keeping up of elaborate and complicated systems of records with multiple cross references and filing methods.

Such systems, however desirable, are beyond the reach of most small hospitals, because of lack of sufficient funds, insufficient number or absence of house officers, and small clerical staff; nor are they necessary, since everything is on a smaller scale and methods which would be cumbersome in the larger institutions are quite convenient here.

The problem for the small hospitals therefore reduces itself to:

What are the essentials of proper record keeping and how with the means at hand can these essentials be provided?

Now, just what are the essentials and why?

The Committee on Hospital Standardization of the American College of Surgeons in their preliminary survey of hospital conditions ask the following questions and it seems to me that these cover points that any well equipped hospital can and ought to include in their records.

1. Are case records signed by the respective physicians or surgeons responsible for cases?

No hospital can hope to have good records without the active and hearty coöperation of its staff and nothing should be easier, or perhaps actually is, harder to obtain. A physician's or surgeon's signature should indicate that he indorses the record as accurate and correct and as it is distinctly to his advantage to have it so, he should demand the right to make such indorsement.

2. Do case records include:

Personal history of patient relevant to complaint?

Diagnosis on which treatment was based? (Preliminary or working diagnosis.)

Laboratory and physical findings?

Important points of operation or of treatment?

Post-operative (final) diagnosis? Complications of convalescence? Autopsy findings?

Comment seems hardly necessary on the above. It is obvious that any records worthy of the name should contain those points.

3. Do case records include follow-up records, and are patients told before leaving hospital that their subsequent medical history will be asked for?

The value of a suitable follow-up system needs no explanation. There is no room for argument. It is the only adequate way of checking up results, of recognizing and correcting mistakes, of discovering the causes of failures and of finding means of preventing their repetition. Furthermore, it helps to convince the patient of the sincere interest on the part of the physician in his welfare and thus foster their coöperation and mutual understanding. Any follow-up system can undoubtedly be more successfully carried out if the patient understands before leaving the hospital that future reports as to his condition will be asked for.

To all of the above should be added a workable card catalogue filing system. These catalogues commonly include

1. By patient's name.
2. By diagnosis.
3. By organ or region.

all having cross references, and to these are added, in some cases, all manner of subdivisions. The first of these, the catalogue by name, is essential in all cases in order to carry out any follow-up system and to keep track of re-entries. The second, by diagnosis, is very desirable as a means of looking up and compiling cases of a given type and in getting out an anual report. The third, by region or organ, and the various more elaborate subdivisions, while valuable, are by no means essential to the small hospital where the number of patients is comparatively small and searching through the catalogue for given material not an arduous task.

How, with the means at hand, are these essentials to be carried out?

I believe that every hospital, no matter how small, ought to be able to work out for itself a plan which would fulfill all these rquirements. The difficulties are in some cases considerable, but by no means insurmountable, and the advantages of good records will amply repay the effort.

In order to get some idea of what our smaller hospitals are doing along these lines, I addressed a letter of inquiry to the superintendents of something over 60 New England hospitals having an average daily number of patients between 20 and 100. Replies were received from 25. Of these, seven stated that they either had no adequate system of records or that their method was entirely unsatisfactory. Four of these were just in the process of developing a new system which they hoped to put into effect in the near future. The remaining 18 sent more or less detailed accounts of their methods and of the difficulties they were experiencing in carrying them out. Twelve of these have apparently worked out fairly satisfactory systems and keep really good records. Six have inaugurated and are carrying out follow-up systems, and the other six would seem to be in a position to add this feature to their present systems without difficulty. Of the remaining six, two sent too little data to judge of the adequacy of their methods, and the other four described systems somewhat lacking in completeness and such as would require more or less radical change to make them satisfactory.

The clerical end of the work, filing, cataloging, and so forth, was in practically every one of these hospitals carried on by one person. In three instances it was stated that this person devoted her entire time to the work. In all other cases it was either stated or intimated that the clerk carried out these duties in conjunction with other hospital work. In one instance the work was done by two graduate nurses, each devoting but a part of their time to the records, and one hospital divided the work between the hospital bookkeeper, the telephone operator, and the superintendent's stenographer.

In response to the question of what difficulties were met with, not one hospital mentioned any trouble in getting the clerical part of the work done. The difficulties all seemed to be in getting proper reports of the histories, physical examinations, operations, etc. Seven hospitals were most concerned with their inability to obtain proper interest and coöperation on the part of the staff. Two mentioned the troubles caused by depleted staffs on account of the war, this, of course, being a purely temporary difficulty. Four complained of the difficulty of getting house-officers, and two were unable to get good records from the house officers they had.

All this, of course, with the exception of the shortage of house officers, points to a lack of interest and coöperation on the part of the doctors. It is obvious that we cannot have good records if we, in our position, as attending physicians, are not sufficiently interested and willing to do our share; but, on the other hand, no system is going to succeed which calls for too much time and attention to details on the part of the staff.

Hospitals, which through their location or other advantages, are able to get sufficient house officers, ought to have no real difficulty with this part of the work; but institutions where there are no internes or an insufficient number of internes have got to devise some method of having this work done, other than that of depending on the attending physicians to write out the records personally. Of course the first thing that suggests itself is to have a competent stenographer who will take down dictation at the time of the visit and after operations. This stenographer could also take care of the clerical part of the work and the details of the follow-up system. Unfortunately, this entails

an expense that many small hospitals are unable to stand. Another plan is the one that is employed at St. Vincent Hospital, Worcester, for the reporting of operations. This is the use of the dictagraph. I have not heard of this being tried in any other institution, but it seems to me that it might prove a convenient and practical method.

Several of the hospitals are making use of a nurse, trained to take histories and write out the reports of physical examinations, this latter under the direction or dictation of the attending physician, something after the manner of the old English clinical clerk.

Dr. Stetson, of Greenfield, writes me that he has favored something of this sort for the Franklin County Hospital. In one hospital this is done by the laboratory technician, who is a graduate nurse.

The Springfield Hospital writes me: "We have evolved a scheme of keeping our records which seems to show good results, as at present, no patient can be discharged from the hospital until their record is complete. We have appointed a registrar, a graduate nurse, who has full charge of the records. When the patient is admitted, she takes the history, except in the case of venereal cases, when the house officer does it. We find, that with teaching and practise, a graduate nurse takes as good, if not a better history, than the average house officer. Furthermore, she *always takes it*. We have a blank form for the physical examination and the house officer makes this examination and records it."

In hospitals where there are no house officers the attending physician would have to fill in the physical examination form and he ought to have the chance of correcting the history before it is written in its final form. The reports of laboratory findings and so forth should, of course, be sent to the wards and kept there with the charts and records until the patient's discharge, when all parts of the records should be sent to the office for filing or binding. The nurse's notes of treatment may be kept on a separate sheet or in the margin of the history sheet. I believe that in the small hospital they are better kept in the margin.

The separate medication and treatment slips in use in some hospitals are more of a necessity in larger institutions where patients are more often transferred from one ward to another and where orders written in an ordinary ward order book are sometimes incorrectly or incompletely copied. In the absence of house officers, notes on the patient's progress, the occurrence of complications, and so forth, may be recorded by dictation from the attending physician in a book provided for the purpose. These notes may then be transferred to the records by the ward nurse. When the completed records are sent to the office, upon the patient's discharge, they may be preserved for future reference, either in bound form or under the loose-leaf or jacket system.

My correspondents were about evenly divided in their preference between these two methods. Both have their advantages and disadvantages. The loose-leaf system offers the advantage of having all records of a given patient, no matter how often he may re-enter the hospital, kept together, but, if they are kept accessible for reference, there is danger of parts or whole of records being lost.

The bound method, of necessity, separates reentry records from their original admissions, but in small institutions these re-entries are not very frequent and the necessary amount of cross referencing and looking up cases in separate volumes is not a very arduous task. As stated above, all this work of filing records together with the necessary cataloging, is carried on in most of the hospitals by one person, who devotes all or part time to this task. I believe the plan of having this work divided between a number of people is a bad one, as it tends to confusion.

Wherever a follow-up system is put in practise, I think it will be found necessary to have one person, whose whole time is devoted to record keeping. If a stenographer can be employed for this purpose, so much the better.

I have been able, in this short paper, only to outline, in a very general way, some of the ideas that may be adopted by the smaller hospitals for improving their systems of record keeping. Of course, no definite plan could be laid out that would suit the needs of all. Every hospital has its own particular conditions and problems and the details of its record system must be made to fit these.

DISCUSSION.

Dr. Homer Gage, Worcester: I have been interested for a long time in this matter of hos-

pital records and am very much pleased with the paper of Dr. Stevens. There are various ways of keeping records that are perfectly satisfactory, but the important thing and the difficult thing is to get them written at all. From my personal observation of the small community hospitals throughout the State the majority of them have no records except the record of the patient's admission and the date of discharge, and sometimes the diagnosis; but often nothing but the date of admission and the date of discharge.

Now it is extremely important and will become necessary in every hospital as soon as the community becomes alive as to what the hospital ought to be doing for it, to have some accurate system to show at least that the patient has been seen and has been examined and what has been done for him.

My experience in an Army hospital has led me to believe that it is perfectly practicable to have a system of reports, and to hold the staff rigidly up to certain rules and regulations that in no way reflect on the qualifications of its individual members, but indicates clearly whether they are giving to the hospital the same sort of service that they are rendering to their private patients.

The board of trustees should demand a report of what has been done in the hospital from month to month or quarter to quarter.

We will suppose it is a small community hospital where the services are divided; at the end of three months, or for one month, a report should be made to the trustees of the number of patients that have been admitted, their length of stay in the hospital, the number of fatalities that have occurred in the service, whether medical or surgical, and in the surgical service, the number of cases of sepsis occurring in clean operations.

These are simple things, the Army gets them, and it is perfectly easy for the trustees of a hospital to get them. The trustees have accepted the responsibility of hospital management and have given over a certain duty to the staff. They should see that the staff performs that duty, and I think it is easy for them to do it without undue friction, to the great advantage of the community.

They have a right to demand and the staff has no right to refuse a regular report on the medical and surgical work of the hospital. And if the members of the staff are not willing to discharge that duty, those men should be dropped at the next election; a few wholesome changes will suffice for any community.

And my belief is that we can adopt some of the systems and reports and checks that the Army has taught us and adapt them to our civilian hospitals and secure much better results; and one thing that I want to emphasize is, that the responsibility for that rests on the staff.

The staff may delegate it to whomsoever they please,—to the superintendent,—and from whom they delegate it to, they should compel a report; and I think there is no reason why they should not receive it, and I believe in that way the record system can be much better than it is now.

DR. C. H. COOK, Natick: Hospitals in small communities have both ward and private patients. Do these records include private patients?

DR. HOMER GAGE, Worcester: Does the hospital hold itself responsible for that patient?

DR. C. H. COOK, Natick: The hospital furnishes necessary care and nursing unless a special nurse be required; the medical and surgical treatment is ordered by the medical attendant in charge. No one would presume to demand that records of these patients be kept were they in their own homes; does that relation change because they are in a hospital? If so, how? By requiring hospital records to be kept, is not that privacy, to a greater or less extent, done away with? Under these conditions, will private patients, especially in the small cities and towns, be willing to go to hospitals? It is an open question with me whether or not trustees have a right to require or insist that such records be kept; whether they have a right to require details of the case to be preserved where, in the future, they are not under the control of either physician or patient. It may be the full intention to preserve the secrecy of those records but what guarantee can be given that will make the patient rest easy as to permanent secrecy?

DR. H. P. STEVENS, Cambridge: I think it is wrong to class hospital records as publicity. Any hospital with private or ward patients assumes a responsibility, and I think it is entitled to some fair record of that patient. These hospital records are not public property in any sense of the word; I think adequate records should be kept of private patients as well as ward patients.

DR. C. H. COOK, Natick: There arises the question whether the physicians who send private patients to a hospital will be willing that all the details relating to these patients should be made a part of hospital records. The hospital requires that the physician's directions as to care be written in an order book provided for that purpose: of course the nurse's daily clinical record of administration of nourishment and remedies and daily bodily care, together with pulse, temperature, and respiration, must be kept, else the physician can have no intelligent understanding of the condition, but this is not what I understand by "adequate hospital records." It is to be assumed that the physician keeps records of his private cases for his own use and protection; if he does not, it is his own fault and he must suffer the consequences; but why is it

necessary or incumbent that the hospital also keep such records?

Dr. Walter G. Phippen, Salem: The Salem Hospital takes care of both hospital and private cases and has kept records of both for many years.

There is another point: Dr. Stevens spoke of the dictagraph. We do not have a dictagraph, but the etherizer has a sheet which is part of the permanent record, on which must be written the report of the operation before the patient leaves the operating room, so that later, in looking up the case, you will find the operation reported correctly.

Original Articles.

VENEREAL DISEASE AND THE PUBLIC HEALTH.*

By George Gilbert Smith, M.D., Boston.

Accurate statistics regarding the amount of venereal disease in this country do not exist. Computations based upon local surveys give an approximate idea of its prevalence, but the results deduced by different writers vary so greatly that their value seems very doubtful. Fischer, quoted by Rosenau, estimates that there are 250,000 deaths in the United States each year due to venereal infection. Biggs, in 1912, stated that in New York City some 800,000 people, or more than one-fifth the adult population, had or had had venereal disease. Nor are adults alone affected; according to Pollack, there are every year in Baltimore from 800 to 1000 cases of gonococcus vulvovaginitis in little girls. Seippel believes that 500 cases occur annually in Chicago.

Osler gives fourth place in the list of fatal diseases to syphilis. Between 6000 and 7000 people die from this cause each year in England and Wales.

Interesting figures as to the prevalence of gonorrhea are found in the report of the Surgeon General of the Army for 1918. The proportion of recruits of draft age (21 to 31) who were found to have gonorrhea was between 2 and 3 per cent. Men from rural districts showed twice as much venereal disease as men from cities or thickly populated areas; colored troops showed two and one-half times as much as white troops. Gonococcus infection is seldom fatal to men; it is important because of the effect it has when transmitted to women, because of the sterility, both in men and women, which it may bring about, and because of the vast amount of time lost from productive labor by those affected. You know without being told, the great number of operations upon women made necessary by gonococcus infection; you can imagine the suffering and the economic loss entailed thereby. Fifty per cent. of sterile marriages, according to Howard Kelly, are due to gonorrhea. As for the amount of time lost from work because of venereal disease, one has but to consider the fact that at the Massachusetts General Hospital alone, the 50 odd cases of gonorrhea who come daily for treatment lose 300 days per week or 15,000 days per year.

Add to the above losses the cost to each state of caring for its insane, one-fifth of whom have general paresis. Ninety per cent of these show a positive Wassermann test. The feeble-minded who owe their mental deficiency to syphilitic taint, the children blinded by ophthalmia neonatorum or by congenital lues, add to the burden of misery and human waste imposed upon us by venereal disease.

Within the past decade we have gradually awakened to a conception of this problem, and to a realization of the fact that it can be handled as other similar problems have been handled. For some years the American Social Hygiene Association has been working to undermine the inertia and the prudery which prevented a direct attack upon this problem. Public opinion has begun to show the effects of education. Venereal disease has been recognized as a menace to mankind.

This attitude of the public mind has been reflected by the legislatures and Health Departments of various states. In 1910 the legislature of South Carolina passed regulations dealing quite comprehensively with this question. Most significant is the provision for the reporting of persons with venereal disease whom "the attending physician or other person knows or has good reason to suspect is so conducting himself or herself as to expose other persons to infection, or is about so to conduct himself or herself." This regulation dealt a blow at "professional secrecy" by furnishing the physician a legal basis upon which he could stand in case

* Read at the Medical Officers' Conference, U. S. A. General Hospital No. 9, May 14, 1919.

he felt it his duty to prevent a marriage because of the infectiousness of one of the parties.

February 20, 1912, the New York Board of Health adopted resolutions putting venereal diseases on the same basis as other infectious diseases. The public in general, however, slumbered peacefully so far as the question of venereal disease was concerned. Most hospitals still refuse to admit patients known to have trouble of this nature. Although there were plenty of laws by the authority of which health departments might have taken action in the matter, no action was taken. Prostitutes continued to ply their trade; they were arrested, fined, and sent out upon the streets again.

Then came war. Man power in a state of highest efficiency was in demand. The man who was not "fit to fight" was derelict to his duty. Americans had had the opportunity of studying conditions in the armies of our allies. We knew the danger to military forces from loss of effectives because of venereal disease, and expected that, unless precautions were taken, these infections would be immediately increased by the psychic reaction of war, by the abrupt change in environment, and by the hundred and one causes which make it easy to "let down the bars." At the very outset, therefore a campaign against venereal disease was started, with four main lines of attack. These were:

A. Social measures to diminish sexual temptation.

B. Education of soldiers and civilians in regard to venereal diseases.

C. Prophylactic measures against venereal disease.

D. Medical care.

Not least among these was the order that no man in the U. S. uniform should be given or sold liquor. More will be said later about the relation between alcohol and venereal disease. Let me say here that, although I have many times heard men in the army say that they had a fearful thirst, I have never heard anyone criticize the wisdom of the rule which prevented them from slaking it.

That these measures have been on the whole successful in keeping down the amount of venereal infection in the army there can be no doubt. The report of the Surgeon General quoted above does not contain figures showing the number of new infections apart from those existing at entrance. It does state, however, that "the number of current venereal diseases in the Army Camps is remarkably small; and much less than the present components of the Army had before they were inducted into military service." (p. 197.) From my experience at Camp A. A. Humphreys, I should say that these conclusions are true. The mean annual admission rate for gonorrhea in the American forces in Europe is given in the report for 1918 at 36.24 per 1000, a rate which compares very favorably with those of other armies. If we assume that it takes 3 months to cure a case of gonorrhea, this rate means that less than one man in every hundred was constantly off duty because of urethritis.

Perhaps an even greater result of the attack by the army upon venereal disease has been the impetus which it gave to a similar crusade among the civil population. The focus was shifted from the army to the country at large, and although the measures employed must necessarily differ in many respects, they are still being followed with vigor. The Surgeons General of the Army, Navy, and Department of Public Health have together formulated a program.

The Federal government, by Act of Congress, approved July 9, 1918, created a separate Division of Venereal Diseases in the Department of Public Health. This division aims to coöperate in every way with the Health Departments of the several states. In pursuance of this aim, it has sent to 131,830 physicians in the U. S. pledge cards which they are asked to sign and return. The promise reads as follows:

1. To report my venereal disease cases in accordance with the laws and Board of Health regulations of my state.

2. To secure prompt treatment for all venereal cases that come to me, either treating them myself or referring them to a clinic or physician known by me to be competent in the treatment of such cases.

3. Not to dispense medicines which I prescribe in venereal cases, except when they cannot be obtained from a drug store; and not to recommend, prescribe, or sell any proprietary remedy marketed for the self-treatment of venereal disease.

4. To give to every venereal disease patient a circular of instructions, a supply of which is to be furnished me free of charge by the U. S.

Public Health Service or by my State Board of Health.

By March 15, 1919, 50,271 of these pledges were signed and returned. A copy of the Revised Manual for the Treatment of Venereal Disease will be sent to each one who has signed a pledge.

At the same time it created the Division of Venereal Diseases, Congress appropriated one million dollars to be expended through the State Departments of Health in venereal disease control during the year ending June 30, 1919. This sum is divided among the states in amounts varying from several thousand dollars to nearly $100,000. Of the money granted to each state, 10% is to be used for administrative purposes, 50% for actual treatment, 20% each to repressive and to educational measures. A sample budget of $30,000 would therefore be divided as follows:

	Administrative	For Treatment	Repressive	Educational
Salary of State venereal disease officer	$1500			
Salary of employees engaged in ven. dis. work	840			
Travel expense accounts	360			
Clerical hire	200			
Other expenses	100			
Salary of physician and attendants engaged in treatment		$3000		
Cost of arsphenamin and other remedies		4000		
Equipment of clinic		1500		
Capital cost of detention hospital		3500		
Maintenance of same		2500		
Incidental expenses		500		
Expenses incurred in prosecuting doctors and others who fail to report cases			$2000	
Salaries of investigators			2000	
Agents coöperating in law enforcements			2000	
Expenses of printing, preparing exhibits, lectures, etc.				$6000

The campaign against venereal disease calls for the coöperation of the Federal Division of Venereal Diseases, the State Boards of Health, societies genuinely interested in this problem, and the individual practitioner. The plan consists of five subdivisions:

A. Securing of reports of venereal infections.

B. Control of those infected so as to prevent the further spread of the diseases.

C. Establishment of free venereal clinics.

D. Suppression of vicious conditions which favor the spread of venereal infection.

E. Carrying out of a systematic educational program for the general public as well as for those who are infected.

I will comment briefly upon each of these.

A. Securing of reports of venereal infection.—To thoroughly understand the situation and to direct the fight against venereal disease, accurate statistics are essential. Such can be obtained only by the conscientious reporting of all cases of this sort—a procedure to which the medical profession, until recently, has been opposed. It has been argued that doctors would not report their cases for fear of driving them into the hands of the druggist or of the quack. Recent experiments along this line have not borne out these objections. Six states now require the reporting of cases of venereal disease by name and address. I do not know with what success they have met. In Massachusetts, each physician is required to report every new case by serial number. If the patient absents himself from treatment for six weeks, and is not going to some other doctor, or if he is so conducting himself as to be a menace to the public health, his physician is directed to report his name and address to the State Health Department. The latter will communicate with the board of health of the town in which the delinquent lives, and will instruct them to induce, or even to force him to continue treatment. This applies only to persons having a disease in a communicable form.

The above scheme was instituted in April, 1918. In the ten months following its inception, 11,864 cases were reported in Massachusetts. This would seem to prove that we may expect coöperation between physicians and their boards of health. So far as the patient is concerned, I have never found one who objected after he understood the method employed in reporting his case, and the reasons for doing so. It is the sort of thing to which army men are accustomed; the attitude of discharged soldiers towards the reporting of venereal disease will be, I believe, one of coöperation rather than of hindrance, and will influence the rest of the population in favor of this measure.

B. Control of those infected so as to

prevent further spread of the disease.—The reporting of cases of venereal infection, besides supplying information as to the extent of these diseases, provides a way of controlling foci of infection. If physicians and clinics do their duty, every case of venereal disease which applies for treatment must continue treatment until he or she becomes non-infectious. It may be argued that at present a considerable proportion of cases do not see a doctor at all, but get treatment from drug stores; and that these cases will not come under the registration at all. The truth of this cannot be denied; to meet the situation, the Federal Division of Venereal Disease is conducting among druggists a campaign to parallel their campaign among physicians. The object is, of course, to stop the sale of those drugs used chiefly in the treatment of venereal diseases, unless prescribed by a physician. From all points of the compass the carriers of venereal infection are being rounded up. When this process becomes complete, as it may within 15 or 20 years, venereal disease will be as rare as smallpox is now.

Quarantine, for the majority of those afflicted with venereal disease, seems quite unnecessary. On the other hand, the confinement of prostitutes found to be infectious (as 90% of them are) is highly desirable, for these carriers, because of their great sexual activity, are the chief disseminators of syphilis and gonorrhea. The professional prostitute is not alone in this: fully as much harm is done by the clandestine prostitute,—the girl who has a regular vocation, but a most irregular avocation. Of the venereal infections in the British Army 75% were contracted from clandestine prostitutes.

An effort has been made to find such carriers, both by the Federal government by means of the questionnaires in use in some camps, and by state health departments by means of the registration blanks for venereal cases. In both instances the patient is asked to name the person from whom the disease was contracted. Obviously this request will not be heeded in many cases; it is surprising, however, to find how many times the question is answered. If the patient is made to understand that the information is desired simply in order to bring the source of the infection under treatment and thereby to prevent others from getting infected, and that all these matters are confidential, he will be much more likely to answer.

C. Establishment of free venereal disease clinics.—It is not enough to identify the carriers of infection; it is even more necessary to provide for such of these as are not well off financially adequate facilities for treatment. As has been shown, the Federal Government is interested in the establishment of venereal clinics. In Massachusetts, the State Department of Health has instituted a series of ten venereal centers, under the supervision of a competent venerologist, where will be provided diagnostic facilities for the early recognition of syphilis and gonorrhea, and the medical and material equipment necessary for their treatment.

It must be remembered that even though every facility for treatment is provided there are still many patients who cannot afford to spend the morning or afternoon in a clinic. Their jobs will not stand for this. The logical solution, which is not particularly pleasing to the physician, is the establishment of evening clinics. Several of these have been in operation for some years in New York and in Boston. At the Boston Dispensary, a charge of 50 cents per visit is made. This supplies enough income to pay salaries to the doctors who spend two or three evenings a week at the clinic.

The free centers for the diagnosis and treatment of venereal disease which were established in England in 1916 to meet the increase of venereal infection and the scarcity of medical men have been operated with increasing success. Every dollar spent in providing similar facilities in this country is a gilt-edge investment, bound to return many times its value by the checking of human waste. Let it be thoroughly understood that these clinics must be really adequate to the needs of the people whom they are intended to serve, both from the standpoint of scientific treatment and from that of economic consideration.

D. Suppression of vicious conditions which favor the spread of venereal infection.—This aspect of the problem presents many difficulties. The diffusion of prostitution, its insidiousness, its antiquity, discourage those who would suppress it. One thing is sure: that is, segregation and the so-called control of prostitution do not answer the needs of the situation. Abraham Flexner has shown the fallacies of this system as it is practised in Europe. Prostitution is a matter of supply and demand. The demand

must be decreased by far-reaching social changes. For one thing the wages of young men must be sufficient to enable them to marry earlier. The supply of prostitutes must be decreased through better supervision of amusements, such as public dances; by the more sympathetic treatment of early offenders; by the instruction of girls in sexual hygiene. As business opportunities for women increase, it is probable that the proportion of professional prostitutes will grow less, that of the clandestine type will grow more.

The statement made in 1912 by Colonel Maas is profoundly true—that "venereal diseases are intimately associated with two of the most prominent sociological problems of the age, alcoholic addiction and prostitution." It is my own belief that the prohibiting of distilled liquors, if it can be thoroughly enforced, will deal a staggering blow to prostitution. At the same time, it will go far towards preventing the dissemination of venereal disease. Many men and women who ordinarily would not yield to sexual desire, do so when under the influence of comparatively little alcohol. Others, who do not hesitate at promiscuity but who usually exercise precautions against infection, omit these precautions when intoxicated. The establishment of prohibition, unpleasant as it is for those who understand moderation in the use of alcohol, should nevertheless be supported by every thinking individual, if for no other reason than because of the certain decrease in venereal infection which it will bring about.

E. Carrying out of a systematic educational program for the general public as well as for those who are infected.—In preventing the dissemination of venereal disease much depends upon the action of the individual. It stands to reason that education of the individual in the nature of these diseases, and in the facts of sex hygiene in general, is of the greatest importance. The value of education is emphasized by the Surgeon General of the Army in his report for 1918. The Government has distributed 5 million pamphlets and leaflets explaining its social hygiene program. I have already mentioned the Federal appropriation to be divided among the several states; of this, 20% is to be expended for educational purposes. Education is carried out by means of pamphlets, lectures, and exhibits. Perhaps even more is accomplished by the enforcement of laws dealing with matters of social hygiene, such as the law for reporting cases of venereal disease.

The government has prepared two films upon this topic—"Fit to Fight"—which is intended chiefly for troops, and another film which is for use in civil communities to aid in the education of women and girls. One or two commercial pictures dealing with venereal disease which I have seen seemed to be of very little value from the educational point of view, but of considerable value, perhaps, from that of the box office.

Education in all matters pertaining to sex should be, as Rosenau says. "clear, pointed, brief, and direct." It should be as impersonal as possible, except when appealing to the best instincts of the individual. Above all, exaggeration for the sake of being impressive must never be employed.

Not least among measures to check the spread of venereal infection is the education of the infected individual. This is not a case of locking the stable door; education of the infected individual aims to show him how he may achieve a complete cure, and to secure his coöperation in the protection of the community while he is infectious.

How much stress to lay on the matter of personal prophylaxis is difficult to know. As has been very justly said by someone—I think it was Ex-President Eliot—there is a certain incongruity in approaching youth with a Bible in one hand and a prophylactic outfit in the other. Without any question, prophylaxis is a most valuable defense against the spread of venereal disease. The employment of this measure in the U. S. Army has reduced the rate of those non-effective because of venereal disease from 23.23 per 1000 in 1909. when prophylaxis was instituted, to 4.44 per 1000 in 1916. It might be said that because venereal prophylaxis does not protect with absolute certainty, its use begets a false confidence, or that advertisement of its advantages may lull the fear which sometimes (though not often) holds desire in check. Neither of these arguments seems to me to offer any real objection to its use. We must admit what everyone knows—that indiscriminate intercourse always has, and probably always will, occur. Therefore, opportunities for taking prophylaxis should be freely available. Four million men going from our armies to every corner of the land know its advantages and that its

use was demanded when they were in the army. They will demand it now, for the sake of the public health if not for their own.

GASEOUS EXCHANGE WITH UNPRACTICED SUBJECTS AND TWO RESPIRATORY APPARATUS EMPLOYING THREE BREATHING APPLIANCES.

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[From the Nutrition Laboratory of the Carnegie Institution of Washington, Boston, Mass.]

(Continued from page 296.)

UNIFORMITY OF DUPLICATE MEASUREMENTS IN REGARD TO RESPIRATION APPARATUS AND BREATHING APPLIANCE.

In any research, as well as in clinical application of the results, the investigator is concerned with two problems, *viz.*, what are the actual variations involved and how closely can the method used measure these variations. Naturally, two factors enter into any consideration of these problems, *i.e.*, the duplication of the physiological condition and the adequacy of duplicate measurements for the purpose concerned if the conditions remain constant. The possibility of duplication of results in relation to time is considered later. In this research we have attempted to arrange the duplicate determinations in such a manner that the question of time of day, breathing appliance, or respiration apparatus would in no way affect our conclusions. We had two respiration apparatus and three breathing appliances, and thus the possibility of six combinations. We employed six different sequences of experimenting. Owing to technical difficulties it was not possible at times to carry out our original plan of using three subjects with each of the six sequences of periods. From previous experience with respiration apparatus in general[16] and the results obtained here, we feel that the data presented in our tables are in no way affected statistically or physiologically by the deviation from our original plan.

Table V has been prepared primarily with reference to technical possibilities of duplication of results. The values in the table are arranged first as to respiration apparatus; second, breathing appliance as used with either respiration apparatus; third, averages of first and second periods; fourth, averages of individual differences between first and second periods. The table therefore involves differences in respiration apparatus and differences in breathing appliances as far as the average uniformity is concerned between the measurements in two periods with the different respiration apparatus and breathing appliance.

Carbon-Dioxide Elimination. The agreement of the duplicate averages with each breathing appliance, regardless of respiration apparatus employed, is all that could be expected, with the exception of those for the mask in combination with the respiratory-valve apparatus. The averages of the individual differences between the first and second periods are highest with the portable apparatus and nosepieces and lowest with the respiratory-valve apparatus and the mask. The average of the individual differences between the first and second periods with the respiratory-valve apparatus and mask corresponds more closely with the differences between the averages of the first and second periods than with any other combination of breathing appliance and respiration apparatus.

Oxygen Absorption. The data for oxygen consumption show that the best agreement on the average between two measurements is with the portable apparatus and mask and the next best is with the nosepieces and either apparatus. The poorest is with the respiratory-valve apparatus and the mouthpiece, but the range in the average differences between any two duplicate measurements is from 1 to 6 c.c. The averages of the individual differences vary from 5.7 c.c. with the portable apparatus and nosepieces to 14.8 c.c. with the respiratory-valve apparatus and mouthpiece. In general these differences are less with the portable apparatus than with the respiratory-valve apparatus, irrespective of breathing appliance used.

Respiratory Quotient. The agreement on the average between the first and second measurements does not differ materially with any combination of breathing appliance and respiration apparatus. The lowest values are with the mask and respiratory-valve apparatus. The best average agreement and the lowest average of individual differences is with the mouthpiece and respiratory-valve apparatus.

Pulse Rate. The range in the differences be-

TABLE V.—AVERAGES OF ALL MEASUREMENTS WITH RESPECT TO THE FIRST AND SECOND PERIODS WITH EACH BREATHING APPLIANCE AND AVERAGES OF THE INDIVIDUAL DIFFERENCES BETWEEN THE FIRST AND SECOND PERIODS OF MEASUREMENT.

APPARATUS AND BREATHING APPLIANCE	CARBON DIOXIDE	OXYGEN	RESPIRATORY QUOTIENT	PULSE RATE	RESPIRATION RATE	VOLUME PER MINUTE	VOLUME PER RESPIRATION	EXPIRED AIR: CARBON DIOXIDE	EXPIRED AIR: OXYGEN DEFICIT
	c.c.	c.c.				liters	c.c.	%	%
Portable respiration apparatus									
Nosepieces, av. of first periods ..	205	236	.87	63	13.4	5.62	534	3.67	4.21
Nosepieces, av. of second periods	204	238	.86	62	13.7	6.19	564	3.42	3.96
Nosepieces, av. of differences between periods*	16.1	5.7	.076	3.9	.9	1.01	71	.45	.67
Mouthpiece, av. of first periods ..	204	237	.86	65	14.4	6.28	537	3.35	3.88
Mouthpiece, av. of second periods	207	240	.87	62	14.6	6.32	545	3.32	3.86
Mouthpiece, av. of differences between periods*	12.4	8.8	.040	2.6	1.3	1.02	96	.46	.58
Mask, av. of first periods	195	237	.83	65	15.4	7.28	584	2.77	3.29
Mask, av. of second periods	195	238	.82	63	15.2	7.10	573	2.80	3.44
Mask, av. of differences between periods*	9.1	7.2	.040	3.5	.9	.88	52	.35	.31
Respiratory-valve apparatus									
Nosepieces, av. of first periods ..	188	229	.82	66	14	4.91	442	3.90	4.72
Nosepieces, av. of second periods	187	231	.81	64	14.1	4.88	436	3.88	4.75
Nosepieces, av. of differences between periods*	9.1	7.2	.033	3.4	1	.33	40	.16	.30
Mouthpiece, av. of first periods ...	194	234	.83	66	14.5	5.33	460	3.67	4.43
Mouthpiece, av. of second periods	197	240	.83	64	14.3	5.38	469	3.72	4.49
Mouthpiece, av. of differences between periods*	12.3	14.8	.024	2.6	1.3	.31	47	.09	.15
Mask, av. of first periods	190	234	.81	66	14.5	5.67	482	3.38	4.15
Mask, av. of second periods	182	231	.79	64	13.5	5.38	497	3.46	4.33
Mask, av. of differences between periods*	8.1	8.5	.025	3.2	1.9	.36	55	.15	.22

* This is calculated by averaging all the daily differences between the first and second observations.

tween the averages of the first and second periods is one to three beats per minute. Average pulse rate is rather difficult to obtain, and under the conditions of our measurements it may be questioned whether a difference of three beats per minute between the averages of the first and second measurements is sufficiently large to be significant. The lowest average of the individual differences (2.6) between the first and second periods is with the mouthpiece on both apparatus. The highest (3.9) is with the nosepieces and portable apparatus, with a range between the highest and lowest of only 1.3.

Respiration Rate. The best agreement of the averages of the first and second periods with any one of the six combinations is for the nosepieces and respiratory-valve apparatus (14.0 and 14.1) and the poorest is with the mask and respiratory-valve apparatus* (14.5 and 13.5). The latter is a difference of one respiration per minute, and the next lower (nosepieces and portable apparatus) shows a difference of 0.3 respiration per minute; that is, that five out of six show a range of 0.1 to 0.3 respiration per minute. The lowest average of the individual differences between the first and second periods (0.9) was obtained with the portable apparatus, for both the nosepieces and mask. The highest (1.9) is with the mask and respiratory-valve apparatus. The ratio of the difference between the averages of the first and second measurements and the average of the individual differences between the first and second measurements is highest with the nosepieces and respiratory-valve apparatus, and lowest with the mask and respiratory-valve apparatus.

Respiratory Volume Per Minute. The highest average volume per minute is that for the mask and portable apparatus. The poorest agreement for the averages of the first and second periods is shown for the nosepieces and portable apparatus (5.62 and 6.19 liters), and the best for the nosepieces and respiratory-valve apparatus (4.91 and 4.88 liters). The highest average of the individual differences between the first and second periods is with the portable apparatus for both the nosepieces and the mouthpiece (1.01 and 1.02 liters). The lowest averages are with the respiratory-valve

* Attention should be called here to the fact that normal unrestricted respiration is very irregular and consequently uniformity of respiration rate is not necessarily an indication of normality of breathing.

apparatus and all three breathing appliances (0.33, 0.34, and 0.36 liter).

Volume Per Respiration. The highest volume per respiration is with the mask and portable apparatus, and the lowest with the nosepieces and respiratory-valve apparatus. The greatest difference between the averages of the first and second periods is with the nosepieces and portable apparatus (30 c.c.); the lowest with nosepieces and respiratory-valve apparatus (6 c.c.). The highest average of the individual differences between the first and second periods is with the mouthpiece and portable (96 c.c.), and the lowest is with the nosepieces and respiratory-valve apparatus (40 c.c.). In general, this average is lower with the respiratory-valve apparatus than with the portable apparatus.

Carbon-Dioxide Percentage in Expired Air. The greatest differences between the averages of the first and second periods is with the nosepieces and portable apparatus (0.25 per cent.), and the lowest with the nosepieces and respiratory-valve apparatus (0.02 per cent.). The greatest average of the individual differences is with the mouthpiece (and nosepieces as well) and portable apparatus (0.46 and 0.45 per cent.). The lowest is with the mouthpiece and respiratory-valve apparatus (0.09 per cent.).

Oxygen Deficit of Expired Air. The greatest difference between the averages of the first and second periods is with the nosepieces and portable respiration apparatus (0.25 per cent.). The lowest is with the mouthpiece and portable apparatus (0.02 per cent.). The highest average of the individual differences is with the nosepieces and portable apparatus (0.67 per cent.); the lowest, with the mouthpiece and respiratory-valve apparatus (0.15 per cent.).

With the foregoing discussion in mind, we may ask: What combination of respiration apparatus and breathing appliance will insure the closest duplication of results so far as all of the measurable physiological indices of metabolism and respiration are concerned? A critical examination of table V convinces us that the best combination in this respect is the nosepieces and the respiratory-valve apparatus. Physiologically the combination of the mask and the respiratory-valve apparatus is the next to be preferred, and the poorest is the nosepieces and portable respiration apparatus. All of this discussion is based upon the reliability of the whole series of measurements, and in no respect upon a single physiological measurement.

GENERAL FEATURES OF THE RESULTS AND THEIR SIGNIFICANCE.

We have discussed the actual results as shown by tables II to V, inclusive. In that discussion only the actual mathematical differences were, in the main, considered, but here it is our aim to show the significance of the results obtained.

Considering first the oxygen absorption we find that there appears to be no real difference between the results obtained with the portable apparatus and those found with the respiratory-valve apparatus. With the breathing appliances, the lowest results were found with the nosepieces and mask, and the highest with the mouthpiece, but the range on the average is very small, *viz.*, 235 to 238 c.c. per minute. (See table IV.) From the standpoint of oxygen consumption alone, it is difficult to say which of the two respiration apparatus or which of the breathing appliances is to be recommended. From the standpoint of technique, when the periods are short the mouthpiece is recommended for both apparatus; with the respiratory-valve apparatus the mask may also be used. The question may be asked: Why are not the nosepieces recommended? Technically, they are the most difficult of the three breathing appliances to keep in prime condition. From this standpoint the mouthpiece is to be preferred, because if the subject obeys all the conditions (wakefulness and tight closure of mouth), there is no obvious leak with either type of apparatus. From the standpoint of involuntary or normal breathing, the mask is best. Technically it is less suitable for use with the portable apparatus, but is as good as any other breathing appliance for the respiratory-valve apparatus. To sum up, the oxygen absorption is independent of the respiration apparatus or breathing appliance used; the mask is to be preferred with the respiratory-valve apparatus, and the mouthpiece with the portable apparatus.

The carbon-dioxide elimination is of significance when we wish to consider the effect of the apparatus used and the value of the respiratory quotient in the sense in which it is ordinarily understood. Our question here is: What are the actual variations found, together

with their causes, and what apparatus shall we use to measure both of these factors? Tables III, IV, and V indicate that on the average the highest carbon-dioxide measurement is with either the nosepieces or mouthpiece and portable respiration apparatus, and the lowest is with the nosepieces and respiratory-valve apparatus. We conclude that nose-breathing with the respiratory-valve apparatus gives us the lowest value on the average, and that mask-breathing with the respiratory-valve apparatus approaches most nearly to this value, and both nose and mouth-breathing with the portable apparatus give the highest results. For accurate determinations of carbon-dioxide elimination, therefore, the respiratory-valve apparatus and the mask are to be preferred.

The respiratory quotient is ordinarily considered as an index of the character of metabolism, but the influence of the conditions of measurement upon the results is usually not taken into account. An examination of the individual respiratory quotients and the averages of respiratory quotients for the three breathing appliances and the two respiration apparatus used will reveal rather wide differences. It must be recalled here that a breathing-appliance respiration apparatus designed for short experimental periods involves all the variations in the respiratory quotient due to the breathing appliance used, principle of respiration apparatus, coöperation of subject, and actual possible change in this ratio. In addition we should remember that one of the two respiration apparatus was not designed primarily for the determination of the respiratory quotient, *viz.*, the portable apparatus.

The respiratory quotients obtained with nosepieces or mouthpiece and the portable respiration apparatus are higher than those secured with the mask in combination with the same apparatus. On the respiratory-valve apparatus the nosepieces and mask give slightly lower results than the mouthpiece, those with the mask being the lowest. The respiratory-valve apparatus gives the lowest respiratory quotient on the average with all breathing appliances. Thus we find that of the three breathing appliances, the mask gives the lowest respiratory quotient, the nosepieces the next lowest, and the mouthpiece the highest, also that the respiratory-valve apparatus on the average gives the lowest values for the respiratory quotient, irrespective of the breathing appliance used.

In seeking for the possible causes of these variations, either for breathing appliance or respiration apparatus, we are led to consider in advance certain other measurements, *viz.*, total ventilation, respiration rate, volume per respiration, and composition of expired air, as well as possible technical errors.

The possible and probable technical errors will be considered first. The respiratory quotient with the portable respiration apparatus is dependent upon the measurement of the carbon dioxide by absorption, which involves weighing, and upon the measurement of oxygen by determining the contraction of a given volume of circulating air which the subject respires. Possible technical errors in the carbon-dioxide measurement are those due to erroneous weighings or to deficient absorption in the first calcium-chloride bottle, *i.e.*, escape of unabsorbed water vapor which may thus be absorbed in the soda-lime bottle or the calcium-chloride bottle following it.

Calcium chloride has not been used heretofore for the absorption of such large amounts of water as are here involved from a current of air moving at the rate here used, *viz.*, 20 to 35 liters per minute. Tests have been carried out on 16 experimental days to determine whether the first calcium-chloride bottle was an efficient absorber for the water vapor which might reach it from the air expired by the subject and from the water bath surrounding the bell of the spirometer. One of us (L. E. E.) devised a method of experimenting which would satisfy all the conditions of an actual respiration experiment and at the same time determine the actual efficiency of the first calcium-chloride bottle. The method was to conduct an actual respiration experiment with the order of the absorption bottles changed. The usual order is calcium chloride, soda lime, calcium chloride, but the order in these tests was calcium chloride, calcium chloride, soda lime. It will be seen that if an appreciable amount of water escapes absorption by the first calcium-chloride bottle, it is likely to be caught by the second, provided the latter is not very deficient. Our practice was to employ as the first calcium-chloride bottle the one which had been used in the same position during the morning series of respira-

tion experiments, and to use for the second bottle that which previously followed the soda-lime bottle. It will be also recognized that the soda-lime bottle served the same purpose as during the morning experiments, *viz.*, the absorption of carbon dioxide.

The routine of the test was to weigh the two calcium-chloride bottles, connect them up in the apparatus, conduct a 15-minute respiration experiment, and weigh the calcium-chloride bottles at the end. The gains in weight of the first bottle ranged from 2.72 grams on April 18 to 10.10 grams on April 5. The majority of the gains in weight of the first bottle were about 4.5 grams. The gains in weight of the second calcium-chloride bottle ranged from 0.00 on April 30 and May 2 to 0.22 gram on April 18. The average gain of the second bottle was 0.067 gram. About two-thirds of the tests gave results below 0.08 gram. On April 20, the gain was 0.20 gram; April 27, 0.18; and in all other tests less than 0.10 gram. If we accept the highest value, namely, 0.22 gram, we find that this corresponds to about 0.110 liters of carbon dioxide, and if a period is considered as 12 minutes, this would correspond to 9 c.c. per minute of carbon dioxide. Assuming 200 c.c. as the average of carbon dioxide eliminated and 250 c.c. as the oxygen absorbed, the respiratory quotient is 0.80. Adding to the carbon dioxide 9 c.c. changes the respiratory quotient to 0.836, a positive change. The average gain in weight of the second calcium-chloride bottle in the efficiency tests, however, is equivalent to only about 35 c.c., *i.e.*, 2 to 3 c.c. per minute. This amount has no significance in the respiratory quotient values. Consequently we conclude that in the majority of our experiments, the possible inefficiency of the first calcium-chloride bottle can be neglected. This factor is not the primary cause of the difference between the two respiration apparatus in the elimination of carbon dioxide or in the respiratory quotient.

A second technical factor to be considered with the portable respiration apparatus is the determination of the oxygen consumption. The principle (as emphasized before) is the contraction in the volume of air respired by the subject. It involves two factors, one, whether the conditions at the starting and ending points are the same; and, two, whether there is any possibility of change in the circulating current of air due to causes other than the actual absorption of oxygen, such as leaks. So far as the first is concerned, the apparatus itself plays no significant rôle, the chief point to be considered is the regularity in the depth of breathing. As a control upon this and to obtain a graphic record of the total ventilation, we have used a record of the movements of the spirometer bell. A recognition of the principle of the portable apparatus will show that this must necessarily be a slanting record, and if the assumption of physiological principle involved is correct, *viz.*, the constancy of the volume of air in the lungs at the end of expiration, the lower side of the kymograph record of movements should present a slant which is fairly regular.*

We have secured such records for all of our experimental periods with the portable respiration apparatus, and a critical examination of these convinces us that while, with some individuals, there may be rather large variations from one respiration to another, the possible difference which may occur between the first and last respirations of a single 12 to 15-minute period is not great enough to affect significantly the oxygen consumption. A further substantiation of this is the fact that the data for the oxygen consumption secured by the Emmes method[17] agree, in the majority of cases, remarkably well with the values obtained in the usual way. Consequently, the conclusion is that the variations in the volume of the respiratory tract at the end of a normal, involuntary respiration play no significant rôle in the determination of oxygen absorption with a closed-circuit breathing-appliance respiration apparatus. As a corollary to this conclusion we recommend very strongly the adoption of the Emmes technique in the determination of the oxygen consumption with the portable respiration apparatus. It is an admirable control, both physiologically and technically.

Therefore, our conclusion is that from the technical standpoint alone, the differences with the portable respiration apparatus in the respiratory quotient and the carbon-dioxide elimination are not explainable.

The technical errors possible in the use of the respiratory-valve apparatus are next to be

* An actual example is shown in Carnegie Inst. Wash. Pub. No. 216, 1915, fig. 14, p. 40.

considered. The principle involved is a measurement of the volume of expired air and the determination of its composition.

The measurement of the expired air for this apparatus is technically rather simple, namely, the collection of the whole amount expired, with observations as to the conditions under which it is collected, *i.e.*, barometric pressure, temperature, humidity, and mechanical accuracy. All of these conditions have been considered in some detail in a monograph[18] from this laboratory, and technically we assume that all requirements are satisfied. So far as the composition of expired air is concerned, the Haldane apparatus used were controlled daily and, in addition, a statistical analysis of the gas analyses involved in this work indicates that less than two per cent. of the analyses for carbon dioxide show a difference in parallels greater than 0.05 per cent. and that less than four per cent. of duplicate oxygen determinations shows a difference greater than 0.05 per cent. The maximum difference in duplicate determinations of the carbon-dioxide percentage is 0.06 per cent. and with the oxygen percentage 0.10 per cent. The number of periods involved is 102. In no case was it necessary to reject results owing to faulty gas analysis.

The differences between the two respiration apparatus in the values for the respiratory quotient are therefore not due to faulty technique with either apparatus.

The differences in the quotients obtained with the three breathing appliances as used with the respiratory-valve apparatus cannot be due to technique, because the same method of determining the composition of the expired air was employed in each case, *i.e.*, gas analysis. Furthermore, the differences in the quotients are not significant. With the portable apparatus, there are opportunities for variation in the respiratory quotient due to leaks in the breathing appliance. In this respect the mask is the least satisfactory. Indeed, it was with some lack of confidence that we combined it with the portable apparatus in this comparison series, for though a very small leak might not affect appreciably the results with the respiratory-valve apparatus, it would have a positive effect upon those with the portable apparatus. We were obliged to reject but one period in this research because of evidence of a leak. The mouthpiece is the most satisfactory breathing appliance from the standpoint of tightness, while the nosepieces are fairly so. The results obtained with the portable apparatus in the measurement of the oxygen absorption do not give indications of erroneous values due to leaks with any of the breathing appliances.

The differences in the average respiratory quotients are, accordingly, not due to faulty technique with either respiration apparatus or breathing appliance.

For the explanation of these differences we must therefore look for possible physiological causes. The greatest cause for differences in respiratory exchange in the various experiments is the character of the respiration. The physiological indices are the respiration rate, volume of respiratory ventilation, volume per respiration, and composition of expired air. An examination of the respiration rates shows no significant differences with either the two respiration apparatus or the three breathing appliances. The range of averages is from 13.4 to 15.4. Consequently any differences between the two sets of results cannot be ascribed to changes in respiration rate. The values for volume of respiratory ventilation show, on the other hand, marked differences on the average between the two respiration apparatus. The volume with the portable apparatus is slightly over one liter greater than with the respiratory-valve apparatus. With the respiration rate practically constant, this would give a higher volume per respiration, this being the case as the average results with the portable were 556 c.c. as compared with 464 c.c. with the respiratory-valve apparatus. A deeper respiration would tend to bring out more carbon dioxide, thus raising the respiratory quotient. These facts are corroborated by the figures for the percentage of carbon dioxide in the expired air. This leads to the conclusion that the higher average respiratory quotient with the portable respiration apparatus is due to the larger total amount of air respired and greater depth per respiration. In other words, there is a tendency toward a slight over-ventilation of the respiratory tract. It may be questioned as to why the difference should not be considered as due to an under-ventilation with the respiratory-valve apparatus. In the first place there are no definite experiments to prove that

underventilation is likely to take place with any respiration apparatus employing breathing appliances, provided the subject is wide awake and is not conscious of his breathing, that is, it is wholly involuntary. The only condition in which there seems to be a diminished ventilation is that existing in the transitional period between sleep and wakefulness. It is also the experience of the majority of experimenters with all types of breathing apparatus that with untrained subjects there is a great tendency toward overventilation. Another indication leading to the conclusion adopted is the fact that there is a much greater mean difference for the first and second determinations with the portable apparatus than with the respiratory-valve apparatus, and the interpretation drawn from these values is that there is therefore greater irregularity in breathing.

It should not, however, be concluded or assumed that it is not possible to obtain respiratory quotients with the portable apparatus which agree well with those found with the respiratory-valve apparatus. Attention is called to the results given in table II, which shows that with about one-third of the subjects, the respiratory quotients were practically the same on the average with both apparatus, these subjects being T. H. N., J. F. T., F. S., W. F. M., C. F. M., and R. K. B. Attention should also be called to the fact that the greater tendency toward irregularity in breathing with the portable respiration apparatus in no wise affects its value as an instrument for determining the absorption of oxygen.

The general conclusion is that the greater carbon-dioxide elimination and larger respiratory quotient with the portable respiration apparatus are due to a cause whose physiological effect tends to make the subject breathe deeper when attached to the portable respiration apparatus, and that the breathing appliance with which this is the least is the mask. This conclusion is derived from the facts obtained from the measurements of the respiration rate, total ventilation, and composition of expired air and their correlations.

RELATION OF THE RESPIRATORY QUOTIENT AND OXYGEN ABSORPTION TO THE PERIOD OF THE DAY.

One of the questions concurrently studied in this research was whether or not the respiratory quotient changed its level in the period of time between 8.30 A.M. and 12.30 P.M. A still more important problem was the general trend of the total metabolism of a subject at rest, and in the post-absorptive condition between the hours of 8.30 A.M. and 12.30 P.M., as represented by the oxygen absorption.

In table VI, the respiratory quotients obtained with the respiratory-valve apparatus (see previous discussion of the respiratory quotient) have been arranged in order of time without respect to the breathing appliance used. The beginning times for the periods were approximately twenty minutes apart, so that the total time covered in the observations with each subject was about four hours.

The averages show the highest quotient (0.83) was found in the fifth and sixth periods and that the lowest (0.79) was obtained in the ninth and tenth periods, with 0.81 for the last two periods as compared with 0.82 in the first two periods. The first half of the morning has an average of .082 as compared with an average of 0.81 in the last half. An examination of the quotients for the individual subjects shows that there are nine subjects with whom the last quotient for the morning is as high or higher than that for the first period. The omission of the widely varying values for H. O. and P. G. H. does not alter materially the course of the average for the morning. Our conclusion, based upon table VI, is that there is really no significant change in either direction in the respiratory quotient of a subject in the post-absorptive condition during the period of the day extending from 8.30 A.M. to 12.30 P.M.

TABLE VI. RESPIRATORY QUOTIENTS IN CHRONOLOGICAL ORDER (RESPIRATORY-VALVE APPARATUS).

SUBJECT	DATE	PERIODS OF EXPERIMENT					
		1 and 2	3 and 4	5 and 6	7 and 8	9 and 10	11 and 12
J. A. C.	Apr. 8	.76	.79	.83	.77	.72	.70
C. A. C.	" 9	.81	.81	.79	.79	.78	.77
H. H. H.	" 10	.84	.85	.83	.82	.82	.83
T. H. N.	" 11	.79	.80	.80	.79	.81	.81
J. F. T.	" 12	.86	.85	.83	.82	.80	.80
A. G. N.	" 15	.78	.77	.86	.85	.77	.87
J. L. G.	" 16	.87	.78	.84	.81	.78	.80
F. S.	" 17	.83	.82	.78	.81	.77	.78
W. F. M.	" 18	.82	.81	.85	.81	.84	.84
S. N. G.	" 23	.76	.79	.79	.76	.81	.82
W. J. S.	" 25	.77	.77	.79	.76	.84	.83
C. S. B.	" 26	.78	.79	.79	.82	.75	.79
H. O.	" 30	.97	.76	.86	1.03	.67	.83
P. G. H.	May 1	.84	.95	.92	.86	.88	.91
C. F. M.	" 2	.83	.82	.84	.82	.79	.84
R. K. B.	" 3	.80	.80	.81	.77	.81	.80
H. B.	" 6	.85	.82	.82	.85	.83	.82
Average		*.82*	*.81*	*.83*	*.82*	*.79*	*.81*

If the measurement of the oxygen consumption alone is to give an index of the total metabolism, the following conditions and assumptions are necessary: That the respiratory quotient does not change materially in the time of measurement; that, in this research, there is no difference in the measurement due to the apparatus used; that the subject maintains the same degree of tone (internal activity plus absence of visible muscular activity); and that the results are not influenced by apprehension, lack of practice, or effect of continued experimenting. The question we have to consider is whether or not there is a real change in the totality of the energy metabolism which can be indicated by the measurement of the oxygen consumption alone if subjects are attached to either a respiratory-valve apparatus or the portable apparatus, and any one of three breathing appliances used, *viz.*, nosepieces, mouthpiece, or mask.

Evidence as to actual constancy in the oxygen consumption from period to period during the hours from 8.30 A.M. to 12.30 P.M. of subjects at rest in the post-absorptive condition has been submitted from this laboratory in a monograph[19] recently published, in which the oxygen consumption by periods, on dates extending over parts of two to five years, is given for three subjects. These data are not so complete on every experimental day as one might desire, but indicate on the average that there was no material change in the course of the oxygen consumption during these hours.

We have already considered the variation in the values due to the type of respiration apparatus used and to the use of any one of the three breathing appliances, and have stated that we believe there is no significant difference in the values for the oxygen consumption, on the average, due to the respiration apparatus or breathing appliance used. Consequently, the range of values found by us with the different combinations of breathing appliance and respiration apparatus includes all the possibilities of technical errors as well as actual changes in the total metabolism.

A factor which also affects the actual values of oxygen absorption is the character of the materials oxidized. If the proportion of carbohydrate, fat, and protein catabolized varies, and indeed, what has hitherto been but little considered, if the anabolism of fat changes, the actual value of the oxygen consumption must change, even if the total energy metabolism remains constant. This question is quite apart from the problem of how much error is involved in neglecting the protein metabolism in calculating the total metabolism.[20] The calorific values of oxygen in the combustion of fat and carbohydrate are the usual extremes. Any change in the relative proportions of the catabolism of these materials, even though the total metabolism remains constant, must alter at least in a slight degree the total oxygen absorption. When we have pathological conditions in which there is abnormal catabolism, the effect may become even greater. All this discussion has to deal with the constancy of respiratory quotients in the hours between 8.30 A.M. and 12.30 P.M. with subjects at rest in post-absorptive condition. The most difficult factor of total metabolism is to determine the respiratory quotient when it is considered not solely as the mathematical ratio between carbon dioxide exhaled and oxygen absorbed, but in addition it is considered as the ratio between the carbon dioxide produced and the oxygen required by the materials actually burned in the body at the time of measurement, *i.e.*, "combustion index."

The term, respiratory quotient, is defined as the ratio between the volumes of carbon dioxide eliminated and of oxygen absorbed and its numerical values are used as an index to the kind of body material burned. The term, however, is very frequently applied to ratios obtained under conditions of experimenting when the primary object is to study the physiology of respiration rather than the catabolism of body material. Under such conditions, ratios are often obtained which are numerically well outside the commonly accepted range of respiratory quotients, *viz.*, 0.70 to 1.00. We would propose that the term, "*gaseous ratio*," be used when the investigators are interested purely in the physiology of respiration or when the workers believe that they are not warranted in attaching to the ratio obtained a significant value as an index to the catabolism. When, however, the conditions of experimenting are such that the respiration is perfectly natural or unhindered (as in a chamber) and the ratios are considered to give reliable information regarding the body substances catabolized, we would propose for use the term "*combustion index.*" Good examples of experiments in

which these terms can be applied can be found in table VI. With H. O. the ratio of the carbon dioxide eliminated to oxygen absorbed varies from 0.67 to 1.03. That is, if we used the term "respiratory quotient" in its original sense as applying to this series, we would have a condition where at one period of the morning the subject was a severe diabetic (0.67) and in another period he was converting sugar into fat (1.03). It may even be questioned (as pointed out before) whether averaging all the ratios gives a true respiratory quotient. In this case we would be justified in using the term, "gaseous ratio," only. On the other hand, the series of ratios with T. H. N. varies from 0.79 to 0.81, a very narrow range. In this case we could apply the term, "combustion index" to any one of the ratios with a very great degree of certainty. We know of no systematic error or condition of experimenting which would cause us to believe these ratios, as a whole, are either too high or too low; any one of them is well within the experimental accuracy possible in the determination of the "combustion index." With most respiratory exchange apparatus the measurement of carbon dioxide eliminated is easy and that of oxygen consumed is difficult, regardless of whether the apparatus used is a breathing-appliance apparatus or a chamber apparatus; but the elimination of carbon dioxide is more easily affected than the consumption of oxygen by the type of breathing appliance or respiration apparatus employed.

We have shown in table VI the apparent changes in the respiratory quotient with the respiratory-valve apparatus, which we believe to be the best for measuring the respiratory quotient, regardless of breathing appliance used. As we have seen, the values in this table give no indication of vital change in the respiratory quotient (*i.e.*, "combustion index"). Consequently, we must conclude that from the standpoint of relative proportions of fat, carbohydrate, and protein alone, we have no reason to expect a significant change in the values for oxygen consumption, because the subjects were under the same conditions of experimenting, the sequence of periods from day to day was such as to eliminate the effect of apparatus, and the number of individuals studied was sufficiently large (17) to eliminate possible idiosyncrasies.

The periodic changes in the oxygen consumption between the hours of 8.30 A.M. and 12.30 P.M. are shown in table VII. This table is made up primarily from the standpoint that the apparatus or breathing appliance used has no significance in the results. Consequently, the values are arranged solely with reference to the sequence of the measurements themselves. We have included all the values obtained unless there was some reason for exclusion, due to faulty technique. The variations in the values from period to period and in the extremes are the results of possible inaccuracies in observation, unnoticed technical errors, and

TABLE VII. RESULTS OF MEASUREMENTS OF OXYGEN ABSORPTION ARRANGED SERIALLY IN RESPECT TO TIME AND WITHOUT REGARD TO BREATHING APPLIANCE OR RESPIRATION APPARATUS.

(c. c. per minute)

DATE	SUBJECT	ORDER OF PERIODS IN RESPECT TO TIME OF DAY												DIFFERENCE BETWEEN EXTREMES
		1	2	3	4	5	6	7	8	9	10	11	12	
1918														c.c.
Apr. 8	J. A. C.	232	245	245	236	236	250	240	251	245	248	258	255	26
" 9	C. A. C.	244	229	240	239	237	221	260	244	252	246	239	240	39
" 10	H. H. H.	260	262	253	253	261	259	244	256	252	258	261	255	18
" 11	T. H. N.	281	272	276	257	277	265	280	264	280	270	276	268	24
" 12	J. F. T.	253	251	250	(261)*	242	251	247	265	261	261	262	256	23
" 15	A. G. N.	258	238	245	243	227	227	247	236	249	221	228	218	40
" 16	J. L. G.	240	238	231	205	225	223	234	226	225	230	226	237	35
" 17	F. S.	221	206	209	211	221	219	219	212	222	219	223	230	24
" 18	W. F. M.	274	261	236	260	264	248	263	263	234	269	311	274	77
" 23	S. N. G.	269	266	274	265	267	257	269	257	270	253	273	262	21
" 25	W. J. S.	191	199	192	192	201	206	197	199	193	200	183	213	30
" 26	C. S. B.	217	221	229	224	225	229	(217)*	220	228	295	226	224	78
" 30	H. O.	255	238	225	228	222	237	231	235	230	235	215	226	40
May 1	P. G. H.	228	218	220	227	220	224	212	212	211	216	207	214	21
" 2	C. F. M.	195	181	(196)*	182	181	178	179	176	196	185	190	181	20
" 3	R. K. B.	247	245	248	241	244	241	234	239	244	240	251	261	27
" 6	H. B.	219	214	210	208	216	217	220	214	212	209	218	217	12
Average		*240*	*234*	*234*	*231*	*233*	*233*	*235*	*233*	*236*	*239*	*238*	*237*	*33*

* As explained in the text, the values in parentheses have been supplied to make the averages strictly comparable.

differences in actual level of oxygen consumption due to slight changes in wakefulness, degree of tone, and attention on the part of the subjects themselves. When it has been deemed necessary to omit the value found, because we believed the technique was faulty, we have inserted a value in parentheses which is the same as that in the period earlier or later with the same respiration apparatus and breathing appliance. This was done to make the averages strictly comparable.

To determine the general trend in the values for the oxygen consumption (which is the special purpose of this table), we may either consider the average values, or the values obtained with the subjects individually with respect to trend and extremes. If we first examine the average oxygen consumption to note the general trend, we find that the highest value (240 c.c.) is found in the first period. This would be expected, as experience has shown this to be always the case, irrespective of training. The averages then fall until the fourth period (approximately 9.50 A.M.), when the minimum is reached (231 c.c.). The actual range in values is therefore 9 c.c. Considering the lack of training of our subjects and technical difficulties of the apparatus used (two different types of respiration apparatus and three different breathing appliances), the range in the average oxygen consumption of 17 men is very small, and not very significant. After the fourth period, the average oxygen consumption rises slightly, remains more or less constant for four periods, then rises again until in the last three periods the values almost equal that found for the first period. The significance of this course is of value. The first period on the average is higher than any other, the middle four periods (the fifth to the eighth) are, on the average, the lowest; the second and third periods agree with this average, and the last four periods are somewhat higher on the average individually than the middle four, or, indeed, the second and third of the series.

Considering the individual series, particularly in reference to the ranges and the possible explanation of them, we find that differences between the extremes for any morning (see last column) vary from 78 c.c. per minute with C. S. B. on April 26 to 12 c.c. with H. B. on May 6. The next highest difference is 77 c.c. with W. F. M., April 18, the individual values ranging from 234 to 311 c.c. Singularly both the highest and lowest values were obtained with the respiratory-valve apparatus. The lower is duplicated by another measurement with the same apparatus and breathing appliance. The highest value was found with a breathing appliance with which it is quite easy to detect a leak when it is used in combination with the respiratory-valve apparatus. Yet our examination of all the results and possible safeguards leads us to the conclusion that we cannot discard any of these values. Our personal observation was that this subject was not entirely coöperative. If we were inclined to accommodate all of our figures to what we believe, we should say that the ventilation figures for the third, ninth, and eleventh periods were wrong, but we have no proof. We wish to point out here that both the pulse and respiration rate indicated a constant metabolism. While the difference between the extremes was the largest for C. S. B., this is due to the high value of 295 c.c. obtained in the tenth period, his range for all other values being from 229 c.c. to 217 c.c., really a narrow range, all things considered. The high value of 295 c.c. occurred in a measurement with the respiratory-valve apparatus. An examination of the figures shows that this value is due solely to the total ventilation per minute, and to no other factor. The ventilation per minute may be in error due to an erroneous reading of the total ventilation, an erroneous reading of the stopwatch, an erroneous action of the stopwatch, or an actual physiological difference. There is no indication of difference in value of pulse rate; consequently, we must conclude there is an undiscovered error in total ventilation or the reading of the stopwatch.

The third highest difference was 40 c.c. per minute with A. G. N. and H. O. Both these differences are due primarily to the high values obtained in the first period, especially with H. O. The marked drop from a difference in extremes from 77 c.c. to 40 c.c. should be noted.

The next range is 39 c.c., C. A. C., which is due to the low and high figures occurring in the sixth and seventh periods, respectively. It would be tedious to discuss the rest of the values in detail. The ranges vary from 12 to 78 c.c., the modal value is 24 c.c., and the mean is 33 c.c. The mean is raised considerably

by the inclusion of the ranges of 78 and 77 c.c.

Our conclusion must be that irrespective of respiration apparatus or breathing appliance used, the oxygen consumption is fairly uniform and constant during the period from 8.30 A.M. to 12.30 P.M., with a subject at rest in the post-absorptive condition, and that such abnormal values as may occur in the actual measurements are due to slight variations in metabolism or to uncontrolled errors in technique or to errors on the part of the observer.

(To be concluded.)

American Medical Biographies.

LUSK, WILLIAM THOMPSON (1838-1897).*

William Thompson Lusk was born May 23, 1838, in the town of Norwich, Connecticut, and died in New York on June 12, 1897, and was the son of Sylvester Graham and Elizabeth Freeman (Adams) Lusk, and the great-great-grandson of John Lusk, who, emigrating from Scotland, died at Wethersfield, Connecticut, in 1788.

He was educated at the best schools and remembered especially the admonition of the Head Master at Russell's Military School in New Haven in 1854-55, given to some late comers from the Southern States, "Boys, I suppose I must accept these excuses from your parents, but when you pass from here into the outside world you will find that excuses do not count."

Entering Yale in 1855, he was the roommate of his life long friend, William Walter Phelps, and the two strove for high honors in the class. He had difficulty with his eyes and left college after a year. A strict training in the classics gave him the mental excellency of the old-fashioned scholarship, a scholarship evidenced in all his writings. Shortly after leaving college he went abroad and studied medicine during two years in Heidelberg and in Berlin, anticipating the receipt of a degree from Berlin at the end of a third year. The outbreak of the Civil War, however, led him to return to America where he enlisted in the army in time to participate in the battle of Blackburn's Ford. He was also engaged in the battles of First Bull Run, Port Royal, Secessionsville on James Island, Second Bull Run, Chantilly, South Mountain, Antietam, Fredericksburg and many minor engagements. In the single battle of Secessionsville on James Island his regiment, the Seventy-ninth Highlanders of New York, lost 110 out of 484 men. In this battle he acted as aide to General Isaac I. Stevens, who officially reported that he "was in all parts of the field, carrying my orders and bringing me information to the great exposure of his life."

In 1863 he resumed his medical studies in the newly organized Bellevue Medical College and graduated the valedictorian of his class. After graduation he married Mary Hartwell Chittenden, daughter of S. B. Chittenden, a New York merchant, and then spent two years of study in Paris, Vienna, and Edinburgh. These years of foreign study gave him a mastery of medicine from the world viewpoint. Returning to America, he settled in New York in 1866 and taught physiology at the Long Island Hospital Medical College in Brooklyn. In 1870-71, on an invitation extended by Oliver Wendell Holmes, he lectured on physiology at the Harvard Medical School. Bowditch returned to Boston about this time and a hesitancy on the part of the Harvard authorities regarding the appointment to the chair of physiology led Dr. Lusk to make an arrangement to become the associate of Fordyce Barker, then a leading obstetrician in New York, and to accept the chair of Obstetrics and Diseases of Women and Children in the Bellevue Hospital Medical College, a position which he held until his death. The professorship of physiology at Harvard was offered to him the day after he had completed these arrangements. By this contingency New York instead of Boston became his place of residence. He always stated that this experience was illustrative of a man's fate being outside his choice and of success being dependent upon an ability to do well whatever offered in life.

While teaching physiology he engaged in research work concerning the nature of the glycogenic function of the liver. His book, the "Science and Art of Midwifery," was issued in its first edition in 1882. It passed through four editions and was translated into French, Italian, Spanish and, by order of the British authorities in Egypt, into Arabic. Playfair acknowledged it as the only rival to his own book on obstetrics. Dr. Lusk attributed its success to the fact that for the first time in a textbook printed in the English language the attempt was made to explain the phenomena of

* From the forthcoming "American Medical Biography," by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

gestation and labor in accordance with physiological laws. Before the book was issued Dr. Barker caused the publishers anxiety by stating to them his belief that it was too ambitious an undertaking for so young a man. This is only a characteristic judgment of an older generation upon a younger one. Dr. Lusk was an inveterate reader and maintained a knowledge of the medical advances throughout the world. Thus, after reading of the successful mode of operation of Sanger, he performed in 1887 the second successful operation of Caesarean section in New York City, saving the lives of both mother and child, the first having been done in the year 1838.

Yale University gave him the degree of LL. D.; he was president of the American Gynecological Society; vice-president of the New York Academy of Medicine; honorary fellow of the obstetrical societies of London and of Edinburgh; fellow of the Paris Academy of Medicine; and corresponding fellow of the obstetrical societies of Paris and of Leipzig.

In a memorial address given before the New York County Medical Association shortly after his death in 1897, Dr. Austin Flint (the physiologist) said: "No eulogy of mine can add to the nobly earned and well deserved reputation of Dr. Lusk; but I esteem it a precious privilege to pay this tribute to his memory, which lives in the hearts of his thousands of pupils and tens of thousands of readers. He was a true and reliable friend and had no enmities, a most accomplished physician, an original thinker and observer, a laborious and successful investigator, and a gentleman in the highest sense of the word."

Five children were born after his first marriage, of whom survived Graham Lusk, professor of physiology at the Cornell Medical College; Mary E. Lusk (Mrs. Cleveland Moffett); William C. Lusk, professor of clinical surgery at the University and Bellevue Hospital Medical School; and Anna H. Lusk. In 1876 he married Mrs. Matilda Thorn and a daughter by this marriage, Alice Lusk, married J. Clarence Webster, professor of obstetrics and gynecology at the University of Chicago.

GRAHAM LUSK, M.D.

BIBLIOGRAPHY.

"War Letters" of William Thompson Lusk, New York. Privately printed, 1909. This includes the memorial addresses, and has been placed in the larger libraries of the country.

Book Review.

Concerning Some Headaches and Eye Disorders of Nasal Origin. By GREENFIELD SLUDER, M.D., Clinical Professor and Director of the Department of Laryngology and Rhinology, Washington University Medical School, St. Louis. 272 Pages and 115 Illustrations. St. Louis: C. V. Mosby Company. 1918.

The subject of headaches is important and involved; therefore the experience in diagnosis and treatment of so good an authority on the correlation between nose, eyes, and nerves cannot be disregarded by the workers in any of these fields. Three pathological and clinical pictures are described in detail: closure of the frontal sinuses without suppuration, the syndrome of neuroses of the spheno-palatine ganglion, and the picture of hyperplastic sphenoiditis. Although these are only three of the conditions in which the focus of trouble in the eye or nerves is to be found in the nose, they are less obvious to inspection than most of the others.

The author believes that in the majority of cases commonly classed as acute frontal sinusitis, without visible secretion, the pain and tenderness are the result of a negative pressure in the sinus, due to obstruction in the duct, and absorption of air. The different conditions are described under which this obstruction may occur.

The author's work on the spheno-palatine ganglion is widely known. The subject is complicated. Though others have sometimes failed to follow his methods, or to get his results, these must be studied by all who hope to be expert in intra-nasal neuroses.

Hyperplastic sphenoiditis means a pathological process of the mucous membrane, but often also of the bone. These bone changes are described and illustrated in a separate chapter by Jonathan Wright. They may persist after all local evidence of suppuration, if it was ever present, has disappeared. Sluder finds that this lesion underlies many of the recurrent headaches in healthy people, which at present bear the name "migraine."

The anatomy of these regions is carefully shown, and the author's methods of operating upon the different accessory sinuses, and a considerable number of clinical cases are given. The book does not attempt to cover the subject of obviously suppurating disease of the accessory sinuses, but the anatomical and clinical relations of these cavities with the brain and neighboring nerves are incidentally brought out. It is a carefully prepared and scholarly treatise.

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ERNEST GREGORY, *Manager*

126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

REVIEW OF THE INFLUENZA EPIDEMIC.

THE American Public Health Association, at its convention held in Chicago, outlined various phases of the epidemic of influenza in the United States. The discussion is reviewed in a recent issue of *The Commonhealth*. It was estimated that there were approximately 10,000,000 cases and 400,000 deaths from this disease in the United States during the months of September, October, and November, 1918. The opinion was expressed by the majority that the micro-organism, or virus causative, of the disease was undetermined: but that the superimposed infections were caused by several known organisms, which were responsible for the fatal terminations. As the etiology of influenza is not yet determined, the mode or modes of transmission cannot be positively stated: but it was pointed out that since the disease attacks principally the respiratory tract, it is probable that the infective micro-organism or virus is contained in the secretions and discharges of this tract, thus making it appear that droplet infection must be considered one of the principal modes of transmission of the disease.

The conclusions drawn from the discussion of the efficacy of vaccines for prophylactic and therapeutic use are of considerable interest. Vaccines made from the bacillus of Pfeiffer were considered unsuccessful; vaccines from stock cultures of one or more organisms were reported as of no value. It was thought that a vaccine made from organisms freshly isolated from the sputum and lungs, and incorporated in about the proportion as found might be of value in preventing the complicating influenzal pneumonias; but it was generally believed that no vaccine has yet been found to possess therapeutic properties or value.

In considering the prevention and control of influenza, varied opinions expressed by health officers from different sections of the country showed that while their problems were similar, yet the disease did not affect any two sections in exactly the same way. Although there could be formulated no definite measures of control which would be applicable to all communities, it was agreed that the measures best adapted to aid in the control of influenza are compulsory reporting of cases of patients ill with influenza, isolation of patients and quarantine if necessary, disinfection of discharges from the nose and throat, wearing of masks by attendants in the sick room, care of the hands of patients, care of food utensils, general closing of crowded gathering places, education, and publicity.

By discussing the etiology, modes of transmission, the use of biological agents for prophylactic and therapeutic purposes, and measures for control, the American Public Health Association has endeavored to determine a uniform standard of control to aid local health authorities in combating future outbreaks of influenza.

HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

IN a summary of the fifth annual report for the year 1918 of the Highlands and Islands Medical Service Board in *The British Medical Journal*, interesting information is presented

concerning difficulties which have confronted the medical profession and means which have been adopted in an attempt to solve them. It is stated that the number of medical practitioners and nurses continued to decrease during 1918, and that there was no appreciable relief through demobilization before the end of the year. In these districts, as everywhere, influenza added to the work already heavy because of war conditions, and doctors and nurses who remained at home and escaped influenza conducted their work under most trying difficulties.

It is interesting to learn the practical results of a scheme which has been in operation for three years throughout the Highlands and Islands, with the exception of a few parishes. A plan whereby medical service at moderate fees may be available to certain classes has been worked out, with apparently gratifying results. It has been arranged so that the fee paid by the patient shall be the same, regardless of the distance from the doctor's place of residence. In this way, adequate medical service is within the reach of persons of limited means and a reasonable remuneration is assured the physician. The statistics for 1917-1918 show that the people are taking advantage of the opportunity thus afforded them. An increase of 6.6 per cent. in the number of miles per practice travelled, and an increase of 20.8 per cent. in the number of visits has been recorded. There has been an increase of over four per cent. in travelling and visits to patients coming within the range of this new arrangement made by the Board, and a corresponding decrease in purely private patients. Probably eighty per cent. of the travelling and seventy-five per cent. of the visits are under the auspices of some form of public service. The figures for the last two years indicate that the work applicable to what may be described as "appointments" is increasing, and that there is no corresponding increase in purely private practice.

The Highlands and Islands Medical Service Board believes that the nursing service should be so organized on a county district that there can be provided a sufficient number of qualified nurses to assist in public welfare undertakings as well as in general nursing work. Grants are made by the Board to thirty-eight nursing associations, and other grants are also made toward the maintenance of hospitals.

The efforts of the Highlands and Islands Medical Service Board have been directed toward the organization of the medical service on a basis equitable both to the patients and to the practitioners, and although the present system may need to be modified somewhat in the future, its principles appear to be worthy, and acceptable both to the communities and to the profession.

FIFTIETH ANNIVERSARY OF MASSACHUSETTS STATE BOARD OF HEALTH.

Dr. Eugene R. Kelley, State Commissioner of Health, wishes to extend to all members of the Massachusetts Medical Society a cordial invitation to attend the exercises to be held in the House Chamber of the State House, Monday, September 15, 1919, at three o'clock, in observance of the fiftieth anniversary of the founding of the Massachusetts State Board of Health. An address of welcome will be made by Hon. Calvin Coolidge, Governor of Massachusetts. Other addresses will be given by Dr. Henry P. Walcott, formerly chairman of the Massachusetts State Board of Health; Sir Arthur Newsholme, former chief medical officer of the Local Government Board of England; Assistant Surgeon General Allan J. McLaughlin, of the United States Public Health Service; and Dr William H. Welch, Director, School of Hygiene and Public Health, Johns Hopkins University.

A short reception will follow the speaking.

MEDICAL NOTES.

Medical Conditions in Luxemburg.—An account of the medical conditions of the Grand Duchy of Luxemburg has been published in the *Paris Médical* and reviewed in a recent issue of *The British Medical Journal*. It states that the total population is about 267,500, and that the number of medical practitioners is 123. There are 34 physicians at the capital, which has a population of 20,000. There is an excellent laboratory of bacteriology under the direction of Dr. Auguste Praum, who is also president of the Société des Sciences Médicales. At present there is no higher teaching in the Grand Duchy, and a State diploma granted after examination by a medical commission is all that is needed for the legal practice of medicine.

THE CORRECTION OF SPEECH DISORDERS.—We have recently received at the office a list of one hundred and twenty papers on "The Correction of Speech Disorders," read in Cleveland, Ohio, to the part-time speech teachers during their first year of medical supervision, by Walter B. Swift, M.D., expert advisor for speech defects to the Division of Medical Inspection and Physical Education of the Cleveland Public Schools. These papers were read at the meetings of The National Society for the Study and Correction of Speech Disorders between June, 1918, and June, 1919. Ninety-one of these articles were contributed by Dr. Swift.

This series of papers makes a notable contribution to the literature of speech correction. They cover a wide range of subjects and are arranged progressively, containing a part of the formal instruction given to part-time speech teachers during their first year of work. The City of Cleveland has probably done more than any other city in America in the installation of modern methods of speech correction. Reprints of any of these papers, when published, will be sent upon request, free of charge, to anyone applying to Dr. W. B. Swift, 110 Bay State Road, Boston.

INFLUENZA INVESTIGATION.—We have received recently from the American Medical Association the following questions and answers about influenza, and the resolutions passed at the recent meeting of the Association asking for a government appropriation of $1,500,000 to be used for the purpose of carrying on an investigation of influenza, its cause, prevention and treatment:

Q. Will the epidemic again appear?

A. The epidemic will recur, for medical history shows that we have had a series of influenza or grippe epidemics, the last of which proved to be of the most virulent type. There immediately occur to me those of 1867 and of 1889 to 1895. The Metropolitan Life has issued some very definite figures on this latter epidemic covering millions of policy holders, which show an average increased mortality for the five years following of 40% above the normal death rate. Any estimate of economic loss should include the 40% increased mortality that, in all likelihood, will similarly occur in the next four or five years.

Q. Is its origin fairly well known? If not, the likelihood of definite information by research.

A. Much private research has been carried on, but its origin and spread is still undetermined. This must be collected and further stimulated, for only through careful research is there any likelihood of definite information.

Q. What success in the discovery of an antitoxin?

A. The possibility of the discovery of a real antitoxin for influenza is wholly dependent upon the discovery of the actual germ causing the disease.

Q. The possibility of collecting necessary information and its distribution among the people to reduce the dangers of its spread and increase the chances of recovery?

A. I need but cite two of many similar researches, successfully undertaken, that have practically eliminated the dangers of the spread of the disease, to wit, malaria and typhoid. Except for our knowledge of typhoid, the armies of Europe would have been decimated by this disease alone.

Q. The generally bad after effects of the disease?

A. The generally bad after effects of the disease are, unfortunately, too well known by the profession. The Red Cross Chapter in Cincinnati is expending perhaps $200,000 in an effort to examine physically every person who has suffered with influenza: to discover the pathological conditions—bad heart, bad kidneys and lungs—resulting from this epidemic, and relieving the poverty and chronic invalidism that accompany it.

Q. The economic loss to the country of the epidemic?

A. The economic loss can hardly be estimated. The 500,000 deaths alone represent $2,500,000,000 economic loss. Economists all agree to the fact that $5,000 is the minimum social and economic value of a human life It is safe to say that 10,000,000 people had the disease and that they lost 150,000,000 working days. At a minimum combined loss of wage and production of $7.00 per day, there has been another $1,000,000,000 of economic loss to the country. In other words, conservatively speaking, we had between $3,000,000,000 and $4,000,000,000 loss in this last epidemic.

Whereas, the present influenza epidemic caused approximately 500,000 deaths in the United States, and

Whereas, a large proportion of these deaths were produced by pneumonia and other complications, and

Whereas, influenza, pneumonia, and allied diseases now cause approximately one-tenth of all the deaths in the United States, and

Whereas, medical science is not yet in possession of complete data as to the cause, modes of transmission, prevention, and cure of this disease and its complications, and

Whereas, the possession of this knowledge is of grave social and economic concern to the nation:

Therefore Be It Resolved, that it is the sense of the members of the section on industrial medicine and surgery of the American Medical Association, here assembled to discuss influenza, that Congress should and is hereby urged to appropriate not less than $1,500,000 to be used under the direction of the United States Public Health Service for the investigation of the causes, modes of transmission, prevention and cure of influenza, pneumonia, and allied diseases, this sum to be made available to July 1, 1922.

Transmitted by order of the session, held in Atlantic City, June 13, 1919.

DR. OTTO P. GEIER, *Secretary.*

Cincinnati Milling Machine Co.,
Cincinnati, Ohio.

GIFT OF ABYSSINIAN MISSION.—The Abyssinian Mission, which arrived in this country recently, has given to the American Red Cross a gift of about $5,000 to be devoted to humanitarian enterprises. This gift is an indication of the faith which this ancient African kingdom has in the future of the Red Cross, its work and purpose.

POSTURE AND ITS RELATION TO HEALTH.—In a recent issue of *The Commonhealth* there is an article discussing the relation between posture and health. Posture involves the position of the feet, the trunk, and the head. The feet should be parallel to each other and the weight borne largely on the outer strong side of the foot. When sitting, children and adults should sit on the back of the thighs and on the bones of the pelvis, not on the small of the back. When standing and walking, besides keeping the feet parallel, the legs should be straight, the abdomen slightly retracted, the shoulders dropped and held back, and the head balanced. Attention to these simple suggestions outlining the proper pose and poise promotes good health by making possible deep respiration and good circulation, and by diminishing fatigue.

ARMY GENERAL HOSPITALS.—On September 30, the following six army general hospitals will be closed: The hospitals located at Ontario, N. Y.; Biltmore, N. C.: New Haven, Ct.; Fort Benjamin Harrison, Ind.; Fort Douglas, Utah; and Fort Snelling, Minn.

TYPHUS IN POLAND AND RUSSIAN BALTIC STATES.—A recent report states that there are 170,000 cases of typhus in Poland and in the Baltic Russian states at the present time. A group of five hundred Americans, under the leadership of Colonel Harry L. Gilchrist of the Medical Corps, U. S. A., is hastening through Germany to give relief to the afflicted districts. Germany is furnishing whatever delousing equipment is available and is coöperating in transporting medical supplies. At the suggestion of the Polish Government, ten thousand pairs of hair clippers are included in the equipment. The supplies which are being sent to the aid of the suffering countries fill nearly eight hundred freight cars.

RED CROSS ANTI-TYPHUS WORK.—The anti-typhus work which has been accomplished by the American Red Cross has been reviewed in a report issued by the New England Division of the American Red Cross. The anti-typhus train, which was constructed by the Red Cross for the Allies in 1918, has travelled more than four thousand miles across Siberia, and is now at Perm fighting an outbreak of typhus among the soldiers and civilians there. The train was originally intended to be used in the maritime provinces of Siberia, but when the epidemic began to spread throughout the country it went toward the west, carrying sanitary and medical supplies for the suffering men, women, and children. The fever spread alike among military camps, prisons, barracks, hospitals, orphanages, and refugee colonies. Tens of thousands of hospital cases were reported.

In February, 1919, the train left Vladivostock, and continued its work in spite of the fact that typhus broke out among the attendants. Hundreds of patients were bathed daily, their clothes were sterilized, and they were given medicine and garments. The work extended from Vladivostock on the east to Chelyabinsk on the west, a distance of 4125 miles. About 20,000 cases have been treated by the expedition in the six months that the train has been fighting the disease. On one day, 999 patients were cared for. Considerable data has been collected which will be valuable in future anti-typhus campaigns. The health conditions

of the various districts have been studied, and every effort made to supply the needs of the inhabitants. It was discovered that many towns had insufficient sterilizing facilities; to meet this situation, the Red Cross is making plans to construct two hundred sterilizers of a Russian type for distribution among the people next winter, when it is probable that there may be a recurrence of the epidemic. Both the civilian population and the Russian Army face a shortage of clothing, a situation which makes adequate disinfection impossible. Although the Red Cross is sending trainloads of relief goods into the country, the supply is inadequate to meet the needs of the people.

BRITISH MEDICAL RESEARCH.—At the third reading of the "Dogs' Protection" Bill in the House of Commons it was proposed that the House decline to proceed further with the measure, on the ground that it would hinder unnecessarily the progress of medical research. *The British Medical Journal* has reported that it was pointed out by Sir Watson Cheyne that the amendment which has been considered, although recognized to be of value, would still impose an unjust censure on the medical profession and cause delay. As an example of the protection afforded human beings by experiments upon dogs, he quoted the experiments with gas made during the war on dogs and goats. After discussion, both in favor of and against the bill, it was defeated by a vote of 101 to 62.

QUALITY OF PEPTONE.—It has been reported that a representative of the Research Laboratories of the Royal Institute of Public Health in England, in commenting upon bacteriological testing, pointed out the disadvantages of not paying sufficient attention to the manufacture of such products as peptone. In American products it is admitted that the quality and standard cannot be guaranteed. Peptones are made from cattle not carefully enough selected and without consideration for Rideal-Walker test requirements. It has been noticed particularly since the cessation of the supply from Germany, that if used for a cultural medium, this product has resulted in varied cultural features and no standard quality can be depended on.

DR. SIMON FLEXNER.—At a meeting of the Royal Society of London, held on June 26, Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, was elected a Fellow.

RHYTHM IN INDUSTRY.—In an article in a recent Public Health report it is stated that rhythm in industry and occupational fatigue tend to relieve attention and its consequent fatigue, to render more uniform the metabolism and recovery involved in the operation by evenly distributing the work, to mask fatigue effects, and to increase or decrease accident hazard according to the type of accident causation.

BUFFALO DEPARTMENT OF HEALTH.—The annual report of the Department of Health of Buffalo records a total membership of 299. Except for the influenza epidemic, the record for communicable diseases has been a good one, with 37 deaths from typhoid fever, 18 from scarlet fever, 112 from diphtheria, 60 from whooping cough, and 44 from measles. Efforts have been made to reduce all preventable infant mortality and $15,000 was appropriated for this work; but the influenza epidemic prevented the carrying out of the proposed plans. The health service of Buffalo is carried on from pre-natal acivities, through childhood, adult life, and old age, without interference with public hospitals and private physicians.

The Division of Tuberculosis has increased its many activities during the year. The work includes educational instruction, hospital, sanitarium, preventorium, and follow-up care, investigation and examination of suspected cases, supervision of home conditions, and investigation and following up of all returned soldiers and those reported by camps or draft boards as having tuberculosis or suspected tuberculosis.

Of equal importance have been the efforts made to control venereal diseases. Free laboratory service has been available for everybody, as well as hospital and dispensary treatment and social service. The health of school children has been safeguarded by the daily inspection of schools by medical school examiners and school nurses. The Bureau of Food Inspection has supervised the milk supply, restaurants, kitchens, and bakeries. In spite of added labor because of the war, the Health Department has been able to assist medical students and graduates in offering them the fa-

cilities of various clinics. Through the *Bulletin,* continuous health education propaganda has been carried on.

THE AMERICAN JOURNAL OF PUBLIC HEALTH.—The next annual meeting of the American Public Health Association is to be held at New Orleans, La., October 27-30, inclusive. The central themes of discussion will be Southern health problems, including malaria, typhoid fever, hookworm, soil pollution, and the privy.

The general belief among the health profession is that influenza will return next winter, and a full session will therefore be devoted to this subject for the purpose of developing methods of control.

A special effort has been made to arrange the program to meet the practical needs of health officials. Accordingly there will be discussion on such questions as the attitude of legislators towards public health, the obtaining of appropriations, coöperation from women's clubs, health organizations, and the organizaton of health centers.

The program of the sections will deal, as usual, with public health administration, vital statistics, sanitary engineering, laboratory methods, industrial hygiene, sociology, and food and drugs.

Two special programs will also be presented on various phases of child hygiene and personal hygiene.

The program of the meetings will be published in the *American Journal of Public Health* appearing October 5, or may at that time be had upon application to the Secretary, 169 Massachusetts Avenue, Boston, Massachusetts.

PROPOSED BILL FOR NATIONAL DEPARTMENT OF HEALTH.—There has been proposed recently Senate Bill 2,507, providing for the organization of a national department of health. The bill follows the general plan of the Owen Bill, with some modifications of importance. The *Journal of the American Medical Association* has summarized the provisions of this bill. It provides for a department of public health to be directed by a secretary, who shall be a member of the cabinet, and for three assistant secretaries. It proposes that a United States Public Health Service and the Bureau of Chemistry be transferred to the new department, which is also to include bureaus on vital statistics, sanitation, hospitals, child and school hygiene, quarantine, food and drugs, nursing, tuberculosis, and personnel. It will be the duty of the secretary of public health to communicate with the governor of each state requesting him to recommend to the legislature suitable legislation with adequate appropriations to secure coöperation between the Federal Department of Public Health and the State Board of Health. The United States will be divided into health states conforming to the geographical boundaries of the various political divisions. Each state is to create a state board of health, with a state health officer for the state and for each district, subdivision, and precinct, to be appointed by the secretary of public health as federal health officers. The Department of Public Health is directed to coöperate with the Departments of Commerce, Labor, and the Interior in the collection of vital statistics and to establish a uniform system of cards, records, and reports regarding diseases, disabilities, industrial accidents, births, deaths, physical condition of school children, the number and condition of existing hospitals, etc. The bill provides for the appropriation of $15,000,000 for 1920 to be prorated among the states in proportion to their population as soon as the states comply with the provisions of the law and the regulations of the secretary of public health, provided that each coöperating state must contribute to the public health work a sum equal to that contributed by the federal government and that it must make full and complete reports of births, deaths, and morbidity. It also appropriates $48,000,000 for the construction of sanatoriums and hospitals, this sum to be distributed among the states in proportion to their population, each state receiving its allotment to provide an equal amount, also location, plans, and means of future support for the proposed hospital.

MEDICINAL USE OF ALCOHOL.—The following regulations governing the sale of alcohol for medicinal purposes, issued by the Bureau of Internal Revenue, may be of interest to physicians:

"Physicians may prescribe wines and liquors for internal uses, or alcohol for external uses, but in every such case each prescription shall be in duplicate and both copies be signed in the physician's handwriting. The quantity prescribed for a single patient at a given time

shall not exceed one quart. In no case shall a physician prescribe alcoholic liquors unless the patient is under his constant personal supervision.

"All prescriptions shall indicate clearly the name and address of the patient, including street and apartment number, if any, the date when written, the condition of illness for which prescribed, and the name of the pharmacist to whom the prescription is to be presented for filling."

APPRECIATION OF SERVICES OF UNITED STATES MEDICAL CORPS.—General Pershing has expressed his personal appreciation of the services rendered by the medical corps at the front and in the hospitals. He stated that their achievements have added new glory to their profession and that the fortitude with which they had suffered casualties and privations was beyond praise. A statement recently issued by the Surgeon-General records four hundred and forty-two casualties among the medical officers of the American Expeditionary Forces in France from July 1, 1917, to March 13, 1919.

PROMOTIONS IN MEDICAL CORPS, U.S.N.R.F.—The following promotions in the Medical Reserve Corps, United States Navy, have been announced. This is the first time in the history of the Navy that medical reserve officers have been ranked higher than Lieutenant-Commander:

Commander: William Seaman Bainbridge, Robert Crier LeConte, William Baret Brinsmade, Stanley Stillman, Eugene Floyd DuBois, Rea Smith, John Chalmers DaCosta, Milton Joseph Rosenau, George Gorgas Ross, Albion Walter Hewlett, Hobart Amory Hare, Robert Battey Greenough, Judson Daland, James Eli Talley, Edward Milton Foote, Paul Adin Lewis, Guy Cochran, Verne Adams Dodd, Edgerton Lafayette Crispin, John Aloysius McGlinn, LeRoy Goddard Crandon, Harold Denman Meeker, Nelson Henry Clark, Halsey DeWolf, Charles W. Moots, George Arnold Matteson, James Taylor Hanan, Francis Joseph Dever, Frank Cousins Gregg, Clifford Elmore Henry, Porter Bruce Brockway, Clinton C. Tyrrell, Frederick Obadiah Williams, Harvey Mitchell Righter, Zachray Thomas Scott, William Curtis Newton, William Henry Areson.

Correspondence.

DISCHARGED TUBERCULOUS SOLDIERS.

Boston, Mass., Aug. 28, 1919.

Mr. Editor:—

I have read in the New England Notes, in the issue of the JOURNAL of August 28, 1919, a paragraph on the New England Sanatorium at Rutland. In this paragraph the following statement is made: "It has been estimated that of the discharged disabled soldiers and sailors, twenty-two per cent. are tuberculous," I do not doubt but that such an estimate has been made, but I very greatly doubt its truth. If it were stated that twenty-two per cent. of disabled soldiers and sailors were discharged as having tuberculosis, that would be an entirely different matter.

In my private practise and in my hospital clinic at the Massachusetts General Hospital, I have seen many soldiers and sailors discharged from the Army and Navy as having pulmonary tuberculosis and bearing the full weight of everything that this means. It has been my privilege in by far the greater number of cases to prove, to my own satisfaction at least, with the aid of the x-ray, and indeed, in many cases, to the satisfaction of the Army and Navy authorities, that either these men did not have pulmonary tuberculosis at all, or else that they did not have it in clinical form, and were in no need of sanatorium or institutional treatment. There are, of course, many soldiers and sailors whose previously quiescent tuberculosis has broken down under the strain of army and navy life, and for these, the New England Sanatorium at Rutland will be an ideal place.

I cannot, however, let the statement go without comment, that twenty-two per cent. of the discharged disabled soldiers and sailors are tuberculous.

Very truly yours,
JOHN B. HAWES, 2D.

Miscellany.

RECENT DEATHS.

DR. MARY BLAIR MOODY died at her home in New Haven on August 18. Dr. Moody was the first woman to be graduated from the Buffalo Medical School. For many years she practised medicine and surgery in the State of New York, and contributed a number of articles to medical literature. She died at the age of eighty-two years.

DR. HENRY ZIMMERMAN, of Springfield, was shot and killed August 7, 1919. He was a graduate of the University of Maryland School of Medicine, in 1912, joined the Massachusetts Medical Society in 1913, and settled in Springfield. He had returned recently from service in the Medical Corps of the United States Army.

DR. ALBERT LANE NORRIS, a retired Fellow of the Massachusetts Medical Society, died at Brookline, August 29, 1919, aged 80. He was a native of Epping, N. H., served in the Civil War as Acting Assistant Surgeon, settled in East Cambridge, and later moved to Malden, where he spent his life in practice. He wrote several papers on gynecological topics for medical journals and was president of the Middlesex South District Medical Society in 1878.

DR. EDWARD R. SISSON died at his home in New Bedford on August 27 at the age of ninety-one years. He was born in Westport. He graduated from Jefferson College, Philadelphia, and studied medicine at the Berkshire Medical College in Pittsfield, graduating in 1853. The following year he received a degree from the College of Physicians and Surgeons, New York.